Fleet Owner

VOLUME 21
NO. 5

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF ALL AUTOMOTIVE FLEETS

NOVEMBER
1938

Another forward step!

It would be difficult to mention the name of any truck manufacturer who has pioneered more basic improvements and set more high standards of performance than REO. Over a period of 34 years, the Reo Motor Car Company has built up a universal reputation for equipment of advanced design and unusual endurance.

Today, REO is a worldwide organization represented by substantial dealers throughout the United States and in more than 70 foreign countries.

Today, also, REO is executing a new, revitalized program of advancement embracing the policies of creative ingenuity, quality merchandise and fair dealing upon which the foundation of this fine organization was built. Reo dealers will continue to be given the opportunity to operate their *own* businesses, and every possible help to protect their best interests will be forthcoming from Lansing.

Every policy is headed *forward*. Every Reo product —truck or coach—is being backed by the kind of advance engineering and manufacturing precision that will successfully and economically meet your most rigid performance requirements and win new recognition and leadership for REO.

Rowland Campbell
President
REO MOTOR CAR COMPANY, Lansing, Michigan

REO

25% GREATER GASOLINE MILEAGE
50% LESS CHASSIS LUBRICANT

THROUGH STANDARD OIL AUTOMOTIVE ENGINEERING

INCREASING gasoline mileage from 3.95 to 4.97 miles per gallon on new equipment is just one of many money-saving services rendered by a Standard Automotive Engineer for a large Central State bus company.

This Engineer also conducted a series of tests on motor oil which resulted in doubling drain-period mileage *safely*. Again, by testing various lubricants and lubricating methods, the consumption of chassis lubricants was cut in half. This operator has one of the most modern maintenance departments in the country, yet Standard Automotive Engineering Service has proved profitable year after year.

Let the Standard Automotive Engineer in your territory explain more fully just what he can do for you, and where savings might be made in your fleet. His service is free to operators in the middle west. Make an appointment today. Write 910 South Michigan Avenue, Chicago, Ill.

Copr. 1938, Standard Oil Co.

STANDARD OIL COMPANY (INDIANA)

AUTOMOTIVE ENGINEERING SERVICE LOWERS MILEAGE COSTS

YOU CAN DEPEND ON CHAMPIONS

The Kraft-Phenix Cheese Corp., Los Angeles, California use Champion Spark Plugs exclusively in their fleet of trucks. Pictured above is half of their fleet.

DO YOU KNOW that wrong types of spark plugs in the engines of your cars, trucks or buses would raise your maintenance costs? Do you know that even one gas or compression "leaker" in a set will waste gas, reduce power and cause rough, uneven engine performance?

Tests after tests have proved these points. That's why the majority of successful fleet operators have chosen Champion Spark Plugs because Champions alone are leakproof, due to their exclusive Sillment (patented) method of sealing the insulator.

Unlike ordinary spark plugs that leak gas or compression and overheat and are thus thrown out of their designated heat range, Champions are held rigidly within their assigned heat range. Hence, the Champions recommended for your equipment perform as you have a right to expect them to, throughout their useful life.

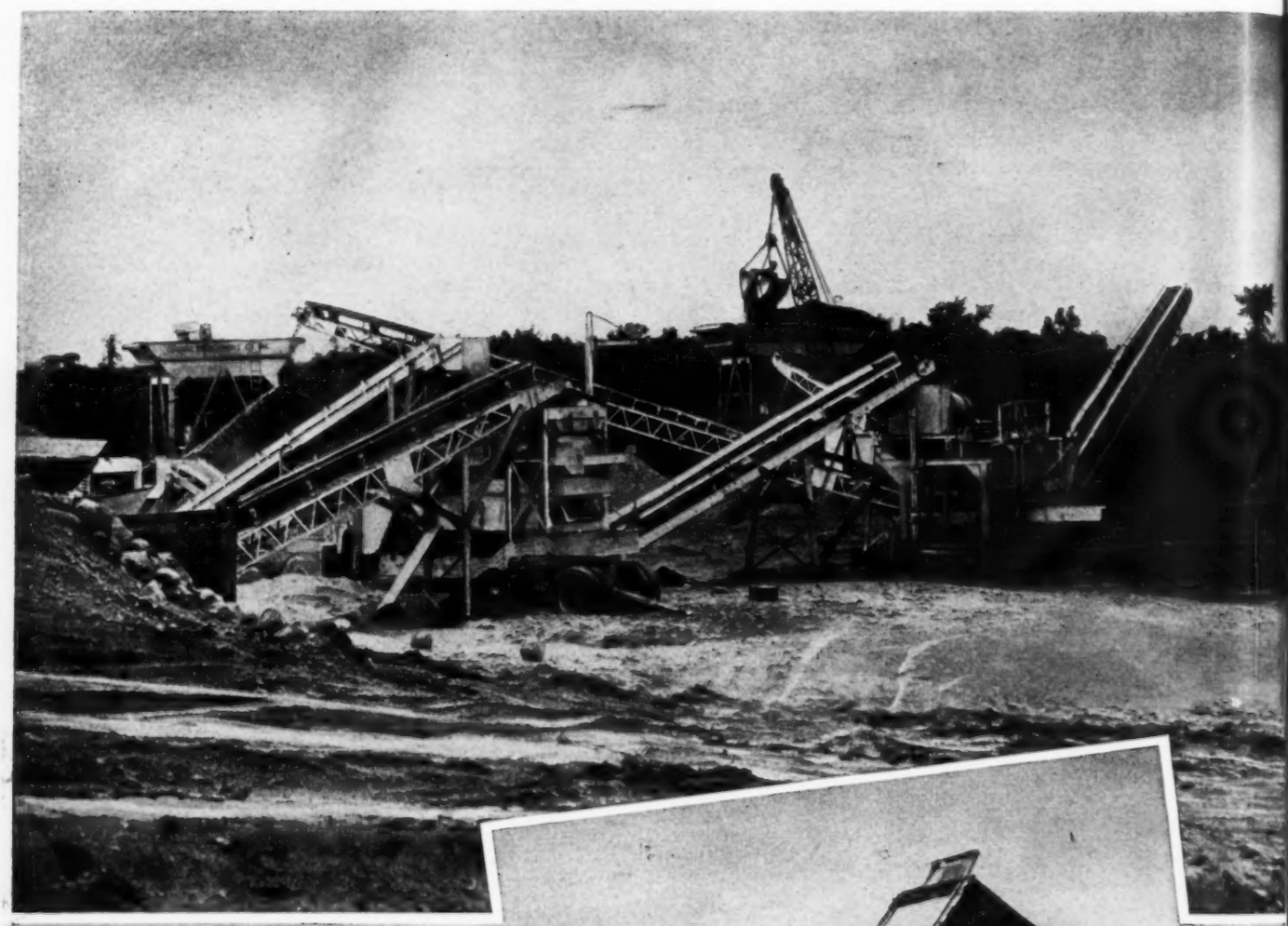
Gas-tight spark plugs are of the utmost importance in producing the best possible engine performance—stopping gasoline waste—increasing power—and smoothing out rough engine performance.

So, demand Champions because you can depend on them. New sets installed in your equipment now will soon pay for themselves in gas and oil savings and provide trouble-free ignition.

THE SPARK PLUG CHAMPIONS USE

CHECK AND CLEAN SPARK PLUGS WHEN YOU CHANGE OIL

SPEEDS ROAD-JOB



Plant of Koepke Construction Company, Appleton, Wisconsin, set up along Highway 22.

To service the 9 trucks and other engines on this job, 750 gallons of *Fire-Chief* had to be hauled 28 miles, and arrive before 5 A. M. each day.

Texaco Dealers invite you to tune in The Texaco Star Theatre—a full hour of all-star entertainment—Every Wednesday Night—Columbia Network—9:30 E.S.T., 8:30 C.S.T., 7:30 M.S.T., 6:30 P.S.T.

TEXACO

B TO BEAT *Jack Frost*

Map of Wisconsin showing Green Bay section of Lake Michigan where Texaco helped contractor to beat early freeze-up.

UP IN THE GREEN BAY COUNTRY, Old Man Winter gets on the job in early fall.

With 8 miles of road building ahead of them, the Koepke Construction Company just had to keep the job going . . . or get frozen in for the winter.

They put it up to Texaco to keep their equipment going, and Texaco came through.

All cranes, shovels, pavers, trucks, tractors, crushers, screening plant were lubricated with Texaco Marfak and other Texaco Lubricants. In fact, the job was Texaco fueled and lubricated 100%.

When you want complete service, come to Texaco. Lubrication engineers will aid you make a sound selection and 2186 warehouses assure prompt deliveries.

The Texas Company, 135 East 42nd Street, New York City.

ROCK DRILL BOOKLET. *Texaco's latest contribution to the care and lubrication of rock drills. 36 pages. Write for your copy.*

TEXACO REG. T. M.

MARFAK

"For a trouble-free Winter," say shrewd fleet operators, "clean radiators and cooling systems now . . . before adding anti-freeze. Get rid of the rust, the grime, the dirt that accumulate through Summer".

SAFE . . . SIMPLE . . . ECONOMICAL

The thorough, the SAFE way to clean out radiators is the low-cost Oakite way. It's simple. Just flush out the system with a solution of quick-acting OAKITE PENETRANT. Every bit of dirt, loose scale or accumulations of grease will be removed from radiators, water jackets of motors. Surfaces will be clean . . . ready to help your anti-freeze compound give you months of trouble-free service.

For this job and others such as removing sludge from motors, cleaning floors, washing painted and lacquered truck bodies, let us send you further data. Inasmuch as there is no obligation, won't you write today?

Manufactured only by
OAKITE PRODUCTS, INC., 52G Thames St., NEW YORK, N. Y.
Branch Offices and Representatives in all Principal Cities of the U. S.

OAKITE *certified* **CLEANING**
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

Charter CCA Member

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners, who Operate or Direct their own Service, and devoted to the Better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

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In This Issue:—

Stripping the Thread	Editorials	13
News of the Truck Industry		18
Building a Line-Truck Body	Fred S. Beach, Sr.	20
Letters to the Editor		26
Fleet Experiences on Power Brakes	H. Clay Fischer	28
Electrical Trouble Shooting—Part 2—Ignition		32
Trouble Shooters' Department		35
Hercules Announces Diesel For Fords		36
New GMC Diesels Now in Trucks		38
Pak-Age-Car Improved for 1939		42
Larger Metro Bodies and New Door Announced		44
Differential-Dual-Wheels for Trailers		46
White Offers "White-Horse" Delivery Unit		48
New Trade Literature (Free for the Asking)		50
Question-of-the-Month-Club		51
New Fruehauf Features Plane Construction		52
Chevrolet Announces Factory-Built C.O.E.		54
Dodge's New Truck Line for 1939		55
New Diesel Engine is Dodge-Built		56
New Products for Road and Shop		57
Index to Advertisers		73

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Air Conditioning for passengers...but

None for the Engine

Job-Test Evidence
IN ARABIA
One of 7 Cummins Diesel powered buses operated by Nairn Transportation Company.

● Bagdad to Damascus—across the sand, dust and heat of the desert, the Model HB-600 Cummins Dependable Diesel powers this Nairn Transportation Company bus on regular, time-table schedules, and the engine asks no favors.

No stuck piston rings . . . no boiling over . . . even in the heat of the desert . . . that's the kind of performance you get in a Cummins *Dependable* Diesel. Cummins Engine Company, 1113 Wilson St., Columbus, Indiana.

CUMMINS
Dependable
DIESEL
PIONEER IN MODERN DIESEL DEVELOPMENT

Cut Chain Costs by more than *Doubling* SAFE Mileage

● The same feature that makes WEED Americans *wear* more than twice as long also makes them the *safer* chains. That is the double-welded Bar-Reinforcement. It provides twice the metal to wear through—and grips the road *three ways*, stopping forward, back and side skids.

WEED Americans are made of "Weedalloy"—a tough, wear-resisting metal especially developed for WEED tire chains. Side chain links are welded and hardened to take the punishment of curbs and ruts. Patented Lever-Lock End Hooks make WEED Americans easy to put on and remove.

Standardize on WEED American Bar-Reinforced Tire Chains and save on tire chain costs.

AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT, CONNECTICUT

SEND FOR FREE CHART

25% to 50% can be added to chain mileage by proper installation. Send for free chart that shows how to apply chains so that all cross chains get equal wear.

In Business for Your Safety

ACCO

WEED

WEED American Bar-Reinforced TIRE CHAINS

Licensed to manufacture and sell Bar-Reinforced Tire Chains under United States and Canadian Letters Patent: American Chain & Cable Company, Inc.; The McKay Company; The Hodell Chain Company; Pyrene Manufacturing Company; Dominion Chain Company, Limited; and Pyrene Manufacturing Company of Canada, Limited.

DOWN GOES THE DEATH RATE for TRUCK and BUS TIRES

Thanks to this New Goodrich Cord Invention
This thick, bulky cord builds up tire heat.
This new compact Goodrich Hi-Flex Cord cuts down dangerous tire heat.

New Goodrich Tire Lasts Much Longer Because It Runs Cooler

Here is a new way you can secure greater truck tire mileage, lower costs, and greater safety, at one and the same time!

All because of a new kind of tire cord — brought to you in the Goodrich Triple Protected Silvertown. This cord — called Hi-Flex — is smaller in diameter than ordinary cord, more compact, more elastic.

NEW KIND OF CORD!

Under constant flexing, ordinary cords usually stretch, increase in length, take a permanent set. That's what causes tires to "grow," to become flabby, and eventually to fail. Hi-Flex Cord stretches — yes —but because it is more elastic, it comes back alive! Returns to its original length.

It retains its strength and elasticity under the terrific pounding on the highways. And because Hi-Flex provides strength without bulk, the whole tire is more compact. And it therefore runs COOLER. The sizzling temperatures which kill off so many tires just don't develop!

TIRES TRIPLE PROTECTED

Only Goodrich gives you Hi-Flex Cord —and only Goodrich gives you the combination of these three features which, working together, lick load problems, lick speed problems, and practically eliminate sidewall breaks:

1 PLYFLEX—a tough outer ply which distributes stresses throughout the tire and prevents local weakness.

2 PLY-LOCK—a new method of locking the plies about the beads, anchoring them in place.

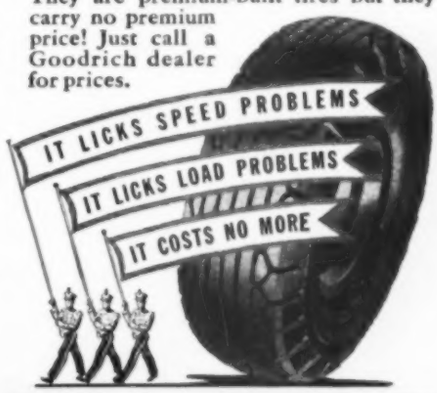
3 HI-FLEX CORD—full-floated in live rubber—cord that retains its strength and protects the tire against getting dangerously hot.

TESTS PROVE CLAIMS

This amazing new Triple Protected tire has been tested on tire-killer runs. Tested where they said no tire could last more than a few thousand miles. But the new Silvertowns took it on the chin, ran two and three times longer than the best tires used before! Set records which old-time tire men said were almost unbelievable!

NO EXTRA COST

Why not start saving now? Put these same tires on your trucks. Try them on your toughest haul. Save on every mile. They are premium-built tires but they carry no premium price! Just call a Goodrich dealer for prices.



Goodrich Triple Protected Silvertowns

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

Now! A CORD THAT *Lives Unharmed* IN HIGH TEMPATURES

VITAL NEW CHARACTERISTICS

ACHIEVED BY REVOLUTIONARY PROCESS...BIG SAVINGS AND THOUSANDS OF 'FREE' MILES FOR TRUCK AND BUS OPERATORS

Proof! ***from the Records of a Leading Tire Manufacturer***

Tested in the life-destroying heat of Death Valley, under over-loads and sustained speeds of 50 to 60 m.p.h. and over, tires built with H R Cord averaged over 40,000 miles on original tread, were re-treaded and run an additional 30,000 miles. Carcasses in excellent condition after 70,000 miles. Tires re-treaded again and are still piling up mileage.

HR CORD TRADE MARK REG U.S. PAT. NO. 2103218

HEAT is the disintegrating factor in a tire. Terrific temperatures of 250° F. to 300° F. are generated in truck tires operating under heavy loads at high sustained speeds. This withering heat literally *fries the life out of ordinary cord.* Such cord quickly loses 30% to 40% of its normal tensile strength, flex breaks occur—the tire is doomed.

Tires made with Bibb Heat Resistant Cord (1) generate less internal heat. (2) Under the heat that *is* generated H R Cord maintains 90% of its normal tensile strength. Flex breaks are practically unknown. Tire "growth" is held to a minimum and tread cracks prevented.

The vital new characteristics of Bibb Heat Resistant Cord are due to the discovery of an entirely new principle in the processing of cotton whereby the natural gums and waxes inherent in cotton fibers are used to fuse and bond the fibers in a result never before attained.

Retaining all the qualities of a low-stretch, low-gauge cord, Bibb Heat Resistant Cord has this tremendous advantage over other type cords: the ability to *live unharmed* in high temperatures and maintain its strength, stamina, resiliency and safety factors under the most severe operating conditions. Every ply of Bibb H R Cord becomes a heat resisting "Firewall." Tests prove that H R Cord outlasts any rubber yet compounded.

Leading manufacturers are now building truck and bus tires with Bibb Heat Resistant Cord. These cooler-running, longer-lasting tires offer the fleet owner tremendously increased mileage, uninterrupted service and reduced cost per load mile. Write today for names of tire manufactures using H R Cord.

BIBB MANUFACTURING COMPANY, MACON, GA.

HEAT BIBB RESISTANT CORD

"I thought Macks were only for the big fellows"

PUBLIC UTILITY: "You can't see stamina when you look at a truck, but it shows up in operation costs! . . . For years I've wished that we could 'cash in' on Mack sturdiness in a light-weight truck!"

DAIRYMAN: "With day in and day out work, we've got to figure on long run economy the same as heavy-haulers! . . . Seems like those 'big Mack' owners get all the breaks!"

PAINTER: ". . . Why don't they build a truck for our needs? I'll bet there are thousands of users of small trucks who could 'go for' a light capacity Mack!"

. . . but you can buy one for less than $1000

The new Macks start at 12,000 lbs. gross weight. Base prices from $985.00 for standard chassis, F.O.B. factory.*

MACK SALESMAN: *"Good news, men!* A new, light-weight line at the lowest prices in Mack history! In every detail of construction, these new Macks are worthy of the greatest name in motor trucks. And backed by 38 years' experience in building top-quality trucks exclusively! Yes, you can now buy a Mack for less than $1,000! Before you buy *any* truck at *any* price see America's most complete line of trucks—the Mack!"

MACK TRUCKS, INC., NEW YORK, N. Y.

**Includes chassis, body, and pay load*

SEE THE NEW MACKS AT THE NATIONAL MOTOR TRUCK SHOW AT NEW YORK AND THE NATIONAL AUTOMOBILE SHOWS AT NEW YORK AND CHICAGO.

for all kinds of hauling..it's a Mack

5 Battery-saving rules for winter operation...

Printed in U. S. A.

Form 219—J 3750—4-'38—128M

DEPARTMENT CORRESPONDENCE *No.* 1246 **THE ELECTRIC STORAGE BATTERY CO.**

Date: Sept. 20, 1938

Subject: ENGINEERING FIELD SERVICE

WINTER BATTERY MAINTENANCE

To OPERATING *Dept.*

Confirming our decision at conference this morning, we believe it is a good idea at this time of the year to call the attention of our fleet customers to our recommendations for Winter battery maintenance. By taking a few simple steps now, an operator can safeguard his fleet against tie-ups and delays due to run-down batteries, and at the same time prolong battery life more than enough to pay for this seasonal attention. The following points will be stressed:—

1. Check specific gravity readings with hydrometers of every battery in service.
2. Recharge fully all those showing gravity below 1.225. (80° F.—Normal electrolyte level)
3. Check and adjust all regulators to Winter running conditions.
4. Make a general check to remove any causes for run-down batteries.
5. Adopt and maintain a practical battery maintenance schedule.

Please instruct your field engineers regarding these plans.

AUTOMOTIVE REPLACEMENT SALES

Exide

COMMERCIAL TYPE BATTERIES

With Mipor and Slotted Rubber

"Mipor," Reg. U. S. Pat. Off.

THE services of Exide's corps of engineers, located at 21 strategic points throughout the country, are available to all Exide users.

Why not take advantage of this service in your winter conditioning and maintenance program?

THE ELECTRIC STORAGE BATTERY CO., Philadelphia

The World's Largest Manufacturers of Storage Batteries for Every Purpose

Exide Batteries of Canada, Limited, Toronto

To mark the fiftieth anniversary of Exide Batteries, a handsome souvenir booklet has been prepared illustrating the essential part these batteries play in daily life. Write, and we will gladly send you a free copy.

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Stripping *the* Thread » »

(The Editor's Column)

TRUCK SHOW—LAST CALL!

● This issue should reach you before the New York National Truck Show opens on Armistice Day. . . . If you are hazy on the details, why not refer back to page 37 of our October issue wherein you will find out that it will be held in New York from November 11 to 17—the same week as the National Auto Show—also in New York. . . . The Truck Show will be open on Sunday, November 13th, if you care to take advantage of the holiday week-end. . . . Nearly 100 exhibits of leading manufacturers of trucks, bodies, Diesel engines, special axles, auxiliary transmissions, vehicle finishes, lubricants, accessories and supplies will be featured, covering an area of 160,000 sq. ft. of floor space. . . . Every type of product in the billion-dollar truck industry will be on display—from the largest tractor-trailer combination to the smallest streamlined package car. . . . Exhibitors have done their utmost this year to make this *your* show. . . . A visit will prove well worth your while. . . . See your truck dealer or other supplier for tickets. . . . See the sights of New York, too! . . . The place? Commerce Hall, Port of New York Authority Building, at 8th Ave. & 15th Street. . . . This publication will be there with a modest booth. . . . Cum-up'n see us; we'll be glad to shake your hand.

●

MORE ABOUT 4 CYLINDER JOBS

● Quite a rumpus has been raised by fleet men recently. calling for standard-sized cars with 4-cylinder engines; also for light delivery vehicles in the half-ton class. . . . They would like them to be offered by the *volume* producers, it seems. . . . What brings up this subject here is this: We have just read the official announcement of Hupmobile, who is offering a "standard" six for 1939, on a 115-inch wheelbase, with bodies and hoods exactly like the famous Cord cars, last series. . . . It seems that they purchased the body dies of Cord and are now making those attractive bodies available in the low-priced field. . . . The important part of their announcement, however, is that they shortly will offer the *same* job on a *4-cylinder* chassis. . . . While not a volume producer, perhaps *there* is the beginning of the answer to your demand. . . . As we said before, it's no skin off *our* knuckles, but we hope you'll get what you want. . . . Should we hear of any others, you'll know about it in due season, rest assured.

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● Here is something for which we think there is a genuine demand—a meter which can be installed on *any* engine, and which will give an *accurate* record of the fuel consumed by that engine. . . . Of course, you can install it temporarily on any vehicle—or you can equip each vehicle of your fleet with one, permanently. . . . So many requests for a device of this kind have reached our office within the last several years, that, frankly, we are mighty pleased that we can now say "Yes, there *is* something like that on the market." . . . You will find a complete description of the device on page 58 of this issue. We are mentioning the thing here, simply to doubly call attention to it, in case you miss it. . . . If you care to write *us* for details, you may use the post-card which is bound in this issue; otherwise, please write directly to the manufacturer, if you'd like his literature. . . . Mention of FLEET OWNER, when writing to the maker, will please us very much.

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(Continued from Page 13)

PHOOEY ON FOURS?

● Whenever we get an unsigned communication, we usually read it and then throw it into the waste-basket—or use it for shaving-paper. . . . Last month we received one that somewhat got into our hair, so we are reproducing extracts from it on page 26 of this issue. . . . We, of course, are *not* partial to 4, 6, 8, 12 or 16-cylinders. When we sense even the essence of a demand, we usually feel around to see what it is all about. . . . So, we recently published about a half-dozen letters from fleet men (not mechanics) who seem to want Fours. . . . Along comes an operator (bet he's a department store man) who says *"Phooey on Fours."* . . . Just because the subject is controversial and because his letter is well written, we've decided to print it. . . . You may or may not agree with him, but let's hear from you, anyway. . . . One point on which we might take issue with him is his mention of vibration. . . . Today's well-designed Fours do *not* "vibrate like Hell"; most of them have husky crankshafts, statically and dynamically balanced; light and well-balanced reciprocating parts, and high-bracket r.p.m.'s. . . . We have driven several late-model trucks equipped with 4-cylinder engines and even have a Four in our yacht-club's tender. . . . But our own automobile has 8 cylinders, so don't get the idea that we are an old moss-back. . . . We believe, however, that there's lots more room for discussion on the subject, so, as we said before, let's hear from you; but for Pete's sake, please sign your name to whatever you write. . . . if you don't want us to print it, just say *"Confidential"* and we will respect your wishes. . . . But read *"Phooey on Fours"* first. . . . It's on page 26.

SIMPLE OIL-TESTER

● A good, old-fashioned "long-felt-want" has existed among fleet men for many years, for *some* sort of device, meter or indicator, that would tell them whether to drain crankcases, or to continue using the oil for a longer period. . . . Up until now (to our knowledge) there has been no reliable way of determining this matter, except by draining a sample and sending it to a laboratory for analysis. . . . We have often predicted that *somebody* could make heaps of money for himself (and the tax-collector), if he would "invent" such a device. . . . And just as we were about to give up all hope of ever living long enough to witness it, along comes an announcement of just such a thing, called the *"Lubri-Meter."* . . . This is a small gadget about the size of your wallet. It sells for what usually is *in* your wallet—considerably less than five bucks. . . . The makers claim that this device enables you to perform three different tests on your used oil—one for foreign matter—one for abrasive content—and one for viscosity. . . . If it's *half* as good as they say it is, we think that *every one* of our 20,000 readers will be glad to dig down in his jeans and get a "copy." . . . A simple instruction chart comes with it, of course. . . . Because this device seems to fill a long-felt want, we hereby give it "front-page" mention. After all, isn't that an Editor's privilege? . . . Further details, if you want them, can be obtained by using the post-card which is bound-in opposite page 50 of this issue. . . . Just write across the face of the card *"Lubri-Meter,"* and drop it in the mail. . . . No postage is needed and *no obligation* is incurred. . . . We would not mention the thing here, only we think it's news.

DIESEL DELIVERY

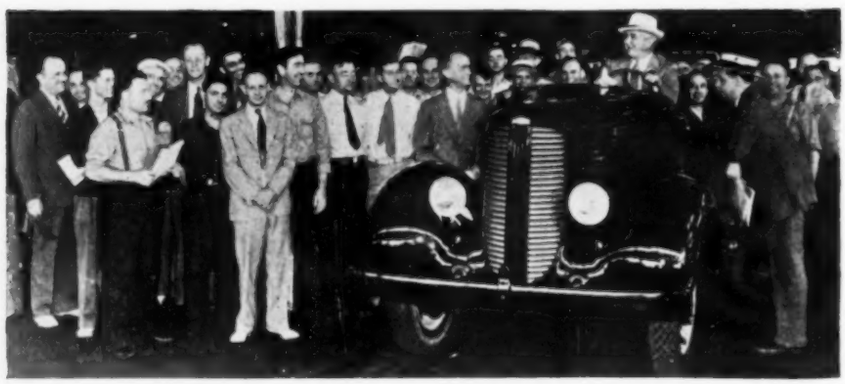
● You are looking at the first of that "largest order" of Diesel-powered trucks, about which you have read plenty, if you are one of our constant readers. . . . Generoso Pope (on running-board), president of Colonial Sand & Stone Company, is shown accepting the first of the 69 Cummins-powered Macks, from F. F. Stanniford (right), president of Mack-Interna-

tional Motor Company. . . . As we told you previously, the trucks, which employ 10 speeds forward and 2 in reverse, make up a $650,000 order. . . . They expected to have delivery completed by the time you read this.

●

CONGRATULATIONS!

● October marked the 30th birthday of the AC Spark Plug Division of General Motors Corporation. . . . Organized in 1908, the company, employing 15 men, began making spark plugs in one room of a small building. Today 4,500 workers produce 30 different automotive products, each product under a specialized engineering and manufacturing staff. The plant has a daily capacity of 200,000 spark plugs and many thousands each of its other automotive equipment products. . . . The company achieved one of the best safety records of all General Motors divisions with only 11 workers losing time because of accidents during the past year. . . . Commenting on AC's 30th anniversary, *"The Flint Journal"* said editorially: *"Altogether, the story of AC progress is one of the most brilliant chapters in Flint's extraordinary industrial history. Few companies can point with as much pride to the manner in which depression has been faced. Had it been satisfied merely to hold its customers, possibly not half the employment now provided would have been available for workers. On the other hand, it could try to win more sales or add new products to its line. AC did both. Flint has been benefited by having the AC Spark Plug Company within its borders."* . . . Our congratulations, too, AC!



"THE KING IS DEAD! Long Live the King!". . . . That's the way Joe Burke, Dodge truck sales chief, aptly described the ceremony in which he recently drove the last of the 1938 Dodge trucks off the final assembly line. . . . Burke, seated behind the wheel, is surrounded by plant officials and workmen, who gathered to watch him start and drive the last vehicle, destined for an owner in a distant section of the country. . . . The new models will be out soon. . . . Watch for them!—Ed.

STEPS UP MILEAGE BY 80%-and More!

..USERS REPORT

—that's why it is the GREATEST IMPROVEMENT IN TRUCK TIRES IN 20 YEARS

"TIRES rarely gave us 25,000 miles of service. We now have some 25 or 30 Goodyear YKL's in service that have averaged between 50,000 and 60,000 miles, and heat blow-outs are no longer the problem they were before we started using YKL."

WALSER TRANSPORTATION, INC.
Greensboro, North Carolina

Hundreds of letters like this testify to mileage increases of 80% and more with the new Goodyear YKL truck tire.

This tremendous step-up in mileage results from the use of a new basic material in every ply—an amazingly tough, satin-like rayon cord, called RAYOTWIST, spun from cotton cellulose and like carbohydrates. It far excels ordinary tire fabric in resistance to heat — *the cause of 82% of all truck tire failures!*

Because of this, YKL's give you NINE standout advantages under even the severest conditions:

1. LONGER TREAD WEAR
2. LONGER BODY LIFE
3. GREATER BRUISE RESISTANCE
4. GREATER SAFETY FACTOR FOR OVERLOADS
5. GREATER SAFETY FACTOR FOR UNDER-INFLATION
6. HANDLES SPEED HEAT
7. GREATER RESISTANCE TO BRAKE DRUM HEAT
8. TAKES MORE RETREADS AND RECAPS
9. GREATER ACCIDENT IMMUNITY

Take the word of men who are using them—*Put on Goodyear YKL's and watch your mileage jump!*

No matter what other truck tires have done for you, the new
GOODYEAR
YKL
will do it better
—because it is built with heat-resisting
RAYOTWIST

FOR LOWEST COST PER MILE *Use*

THE GREATEST NAME IN RUBBER

GOODYEAR YKL

FOR TRUCKS • BUSES • TRAILERS

Stripping *the* Thread

(*Continued from page* 14)

DIVIDED FOR SAFETY

● In the never-ceasing drive to lessen traffic fatalities, several of the states are doing their part by dividing their major arteries, as well as policing them with up-to-the-minute law-enforcement equipment; notably the

states of California and New Jersey. . . . The accompanying picture shows the newest of highway divisions recently completed by the California Highway Department, near Ontario, Calif. . . . Pictured beside the car, one of a large fleet of Chryslers used by the California Highway Patrol, is Captain V. M. Moffitt. . . . Oh yes, the girl, in case you didn't notice her, is Miss Francis Baugh, who apparently is interested enough to have the thing explained to her.

●

PAINTING POINTERS

● You should know, by this time, that vehicle refinishing is one of our favorite subjects. . . . Every once in a while we run into some new (to us) kinks, and we immediately give them "birth" in ink and paper. . . . Our latest brainstorm has to do with the use of paint-gun air-hose—*misuse* would be a better word. . . . Altogether too many fleet painters are inclined to neglect their hose, and to allow all the colors of the rainbow in paint to accumulate on same, especially the last few feet next to the gun. . . . We don't have to caution you regarding the solvent action of the oils and thinners used in automotive finishes and the deteriorating effect which they have on rubber. . . . A little more attention in keeping hose (and guns) cleaner will save much money for your boss and perhaps get you an eventual raise in salary. . . . Another thing, most paint guns that we have seen are provided with a hook—so hang them up when they are not in use. . . . And see that the hose is neatly hung up, too, instead of letting it drag on the floor to trip you up some time when you happen to have an opened gallon can of enamel in your mitts—it happens every day. . . . It's the little, self-evident things in life that are most troublesome—like slipping on the soap in the bath-tub. . . . So, if these few reminders are worth anything to you, you're welcome to them; if not, just consider that we have a certain amount of space to fill each month—and that this is *one* way of doing it.

●

FLINT FEMININITY

● Flint, Mich., center of the automobile industry, recently initiated an annual motor festival in tribute to the automobile. . . . Three days of gala festivities were given over to the event called *"March of Motors."* Parades, including eight bands, street-dances, dinners, fireworks and general celebrations marked the event. . . . From Flint's large automotive plants

beauty queens were selected by the Industrial Business Girls' Club to participate in the carnival parade. The photograph shows Miss Annabelle Thomas, of the advertising department of the AC Spark Plug Division of General Motors, who was selected to represent that concern. . . . The motor festival plan was conceived by civic-minded citizens of Flint, sponsors of the movement. . . . We are sure that this photograph of such an attractive young lady will certainly help to brighten up the pages of this more-or-less interesting journal. . . . If this is a sample of Flint's femininity, it looks as though we are living in the wrong city.

●

BOOK REVIEW

● Every once in a while a "book review" announcement creeps into this so-called column. . . . This time it's *"Motor Traffic Management"*—a volume prepared by H. E. Stocker, who is well known (or should be) to many fleet operators. . . . Briefly, the book is of chief interest to the common-carrier, or trucker-for-hire. . . . It deals with the organization and management of a motor-carrier business; points out comparative advantages of truck vs. rail transportation; tells how to "sell" transportation service; explains many new slants on Federal regulation—the I. C. C. and all that sort of thing; and also has several chapters on the construction of freight rates, tariffs, documents, etc., etc. . . . If you are in the business of hauling other people's goods for hire (or if you are thinking about it) we feel sure that you will find this new book to be just what the doctor ordered. . . . It contains 412 pages, damn few illustrations, but heaps of data that you can put to immediate use. . . . If you think you'd like a copy, the price is five bucks per. . . . Order directly from the publishers, Prentice-Hall, Inc., 70 Fifth Ave., New York, N. Y. . . . Mention of FLEET OWNER is not necessary, but we like it every time you do.

●

BILL-BOARDS

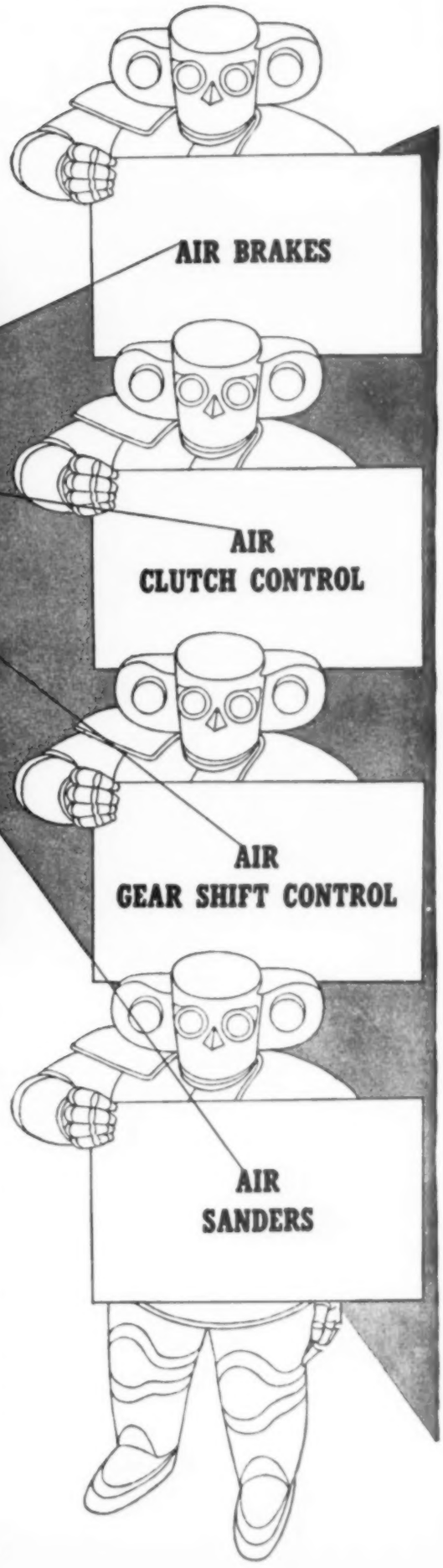
● "Who drives your bill-boards?" someone once asked a leading purveyor of food products. . . . "Do you know whether your drivers are *good* drivers or not?" . . . "Do they observe the rules of the road?" . . . "Are they careful not to cut-in?" . . . And other pointed questions which hinge directly on highway courtesy. . . . You have read many articles in this publication telling how some firms have found it good business to instruct their drivers to assist motorists who may be in trouble on the highway. . . . And about others who have trained their drivers in first-aid; carrying first-aid kits for the general benefit of *anyone* who may become involved in an accident. . . . Pardon us for repeating that every one of your vehicles is a traveling

bill-board for your own concern. With competition as it is, no fleet operator can afford to overlook this type of good-will builder. . . . If you are not doing anything like the above—or if you are not particular about the appearance of your "traveling bill-boards"—further investigation on your part might be a fine thing. . . . Don't say that *we* haven't done our part in reminding you.

Genuine

WESTINGHOUSE AIR CONTROL

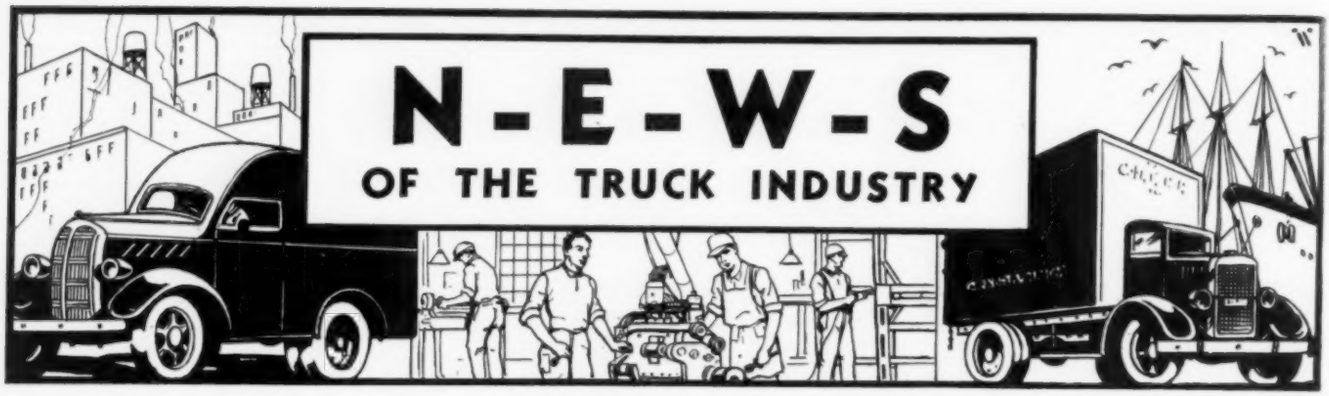
offers 4 STALWART GUARDIANS FOR YOUR SAFETY AND ECONOMY



With genuine Westinghouse Air Control waiting and ready to serve you, no problem regarding this phase of modern transport operation deserves a second thought ● Here is a four point service with a hundred percent score in the column of safety, economy and satisfaction ● For complete information concerning the many exclusive advantages of the world's finest control, consult your local Bendix-Westinghouse Distributor, District Office or, still better, ask any operator whose problems genuine Westinghouse Air has eliminated ● A card or letter addressed to the manufacturer will bring you specific details concerning any phase of genuine Air Control in which you may be particularly interested and without obligation.

●

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO.
PITTSBURGH, PENNSYLVANIA



S.A.E. Transportation Meetings

A SERIES of meetings will be conducted by the Society of Automotive Engineers on November 14, 15 and 16. . . . The meetings will be held at the Hotel New Yorker, New York City, co-incident with the dates of the National Motor Truck Show and the National Automobile Show, both of which will be held in New York City this year. . . . All fleet men are cordially invited to attend these S.A.E. meetings, which will cover some very interesting transportation and maintenance topics.

●

Mack Trucks to Offer Own Diesel

MACK Truck's own Diesel engine, engineered and built in Mack factories, and with cylinder block and head cast in Mack's own foundry, is promised to be on exhibition at the New York National Truck Show. . . . A new unit, said to be the first Diesel truck ever constructed in the United States, whose engine is actually built by the manufacturer of the truck, will also be on exhibit. . . . Details of the new Diesel will appear in the next issue of this publication, if we can get them.

●

FWD's Exhibit at Motor Truck Show

THE EXHIBIT this year, of the Four-Wheel-Drive Auto Company, at the New York National Motor Truck Show, features two of the latest FWD four-wheel-drive trucks—a Model T-40, semi-trailer unit of 40,000 pounds rated capacity; and a Model M-10, ten-ton earth-hauling unit. . . . The T-40 is powered by a 125 h.p. engine and has a wheelbase of 134 inches. . . . The M-10 is equipped with special 8 cu. yd. dump body, with automatic down-folding tail-gate and twin telescopic hoist. . . . It is powered by a 198 h.p. engine and has a wheelbase of 150 inches.

●

Federal Truck Reports Sales Increase

IN ADDITION to a 40 per cent increase in total dealer outlets since January 1st, K. M. Schaefer, general sales manager of Federal Motor Truck Company, reports substantial sales gains. . . . September was 5.7 per cent ahead of 1937 in shipments, and 16.5 per cent ahead of shipments in August, 1938. . . . The introduction of new Federal models, which will be illustrated and described next month, are expected to cause Federal's sales to take a further jump, Mr. Schaefer said.

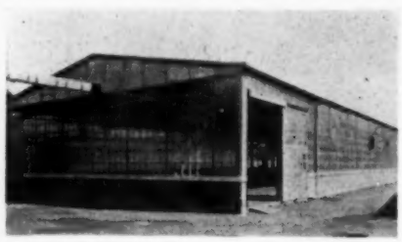
Heiskell Retires; Seyfarth Succeeds Him

INTERNATIONAL Harvester Company, Chicago, announces the resignation of Frank W. Heiskell, who has been advertising manager for more than 25 years. . . . Mr. Heiskell is succeeded by A. C. Seyfarth, formerly assistant advertising manager. . . . Mr. Heiskell has served for 45 years with International and McCormick Harvester Companies. . . . Mr. Seyfarth, widely known in the advertising profession, has been with Harvester since 1904. . . . He attended the University of Michigan and the University of Chicago. . . . He became assistant advertising manager in 1913. . . . Our best to you, Mr. Seyfarth!

●

New Addition to Van Norman Plant

OVER 7,500 sq. ft. of additional factory space has recently been added to the plant of the Van Norman Machine Tool Company, Springfield, Mass. . . . The new building is shown here. It is equipped with a 4-ton



electric hoist, a 10-ton rotary-lift elevator, a new boring mill, planer and lathe, and the latest in lighting, heating and power methods. . . . This building has been built in anticipation of future added business, it is explained, especially to keep pace with the demand for Van Norman's automotive equipment.

●

"Mechanical Man" at Heil Exhibit

HEIL COMPANY announces that their National Truck Show exhibit is featuring the "Heil Mechanical Man," who will point out the operating advantages of Heil Hydraulic Dump Units and Heil Gasoline and Milk Transportation Tanks. . . . These two types of equipment are featured in actual operation. Enlarged photos of other types of Heil bodies are also shown. . . . Other Heil products on exhibit include Heil Oil Heating and Air Conditioning Equipment, and Heil Water Systems for use in farm or suburban homes.

Fred Hastings Pak-Age-Car Sales Mgr.

PAK-AGE-CAR Corporation, through its president, Roy H. Faulkner, announces the appointment of Fred Hastings as sales manager. . . . Mr. Hastings has been associated with affiliated companies of the Pak-Age-Car Corporation, Connersville, Ind., for a number of years and is well known in the automotive field. . . . At the same time, Mr. Faulkner announced the appointment of A. R. Gribben, long identified with the automotive trade in New York and other eastern states, as assistant sales manager for Pak-Age-Car. . . . The Pak-Age-Car is illustrated and described elsewhere in this issue.

●

Mack's Exhibit at Truck Show

MACK Truck's exhibit at the National Truck Show promises to be one of the more prominent and complete. . . . A most complete line of trucks in both conventional and cab-over-engine types, from the lightest to the heaviest capacities, will be featured. . . . Six truck models will be shown, as well as Mack's new "Thermodyne" engine for fire apparatus; a new 10-speed transmission; a rear-axle assembly in cut-away form; a shock-insulator display; and a 6-wheel rear bogie. . . . Mack's new Diesel engine will also appear.

●

Johnson New IHC Assistant Adv. Mgr.

CARROLL E. JOHNSON has been appointed assistant advertising manager of International Harvester Company. . . . He succeeds A. C. Seyfarth, whose promotion to advertising manager is also announced in this issue. . . . Mr. Johnson joined the IHC advertising department in 1903 and has done splendid work there ever since. . . . Our best wishes, Mr. Johnson!

●

Marmon-Herrington New Models on Display

PROMINENT among the displays at the National Truck Show are the 1939 models of all-wheel-drive trucks exhibited by the Marmon-Herrington Company of Indianapolis, Ind. . . . Of principal interest are the "conversions" of Ford V-8 trucks, commercial and passenger cars, to all-wheel-drive vehicles. . . . This work is done in Marmon-Herrington's own factory. A complete line of Marmon-Herrington's own heavy-duty trucks and truck-tractors is also offered.

INTERNATIONAL HARVESTER maintains the world's largest Company-owned truck service organization as assurance that International users will get maximum value from every dollar invested in International Trucks. Whether you *buy* trucks or *sell* them, it will pay you to know more about Internationals and the performance for which they are famous. Ask us to show you how you can profit with International Trucks.

More than one hundred Internationals —in sizes ranging from light-delivery to big six-wheel tank trucks — serve Dowell, Incorporated. This view shows a Dowell crew at work, treating a well with acid to increase oil production.

Whatever You Haul . .

LET INTERNATIONALS HAUL IT

INTERNATIONAL HARVESTER builds every type of truck to meet every trucking requirement, from light-delivery to heavy-duty six-wheel trucks. In all there are 30 models in 99 wheelbase lengths. And every one of them is *all-truck* in every inch and ounce of construction and design. Every International is engineered for outstanding performance and styled for brilliant appearance. The illustration on this page shows the quality of International design. For performance, let the trucks speak for themselves, for *your* business on *your* job. Complete information will be sent on request.

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
180 North Michigan Avenue Chicago, Illinois

International Model D-30 with panel stake body. All International chassis lend themselves well to special body designs.

INTERNATIONAL TRUCKS

INTERNATIONAL TRUCKS

TRUCKS TOO

Can Now Have Jenkins Valves

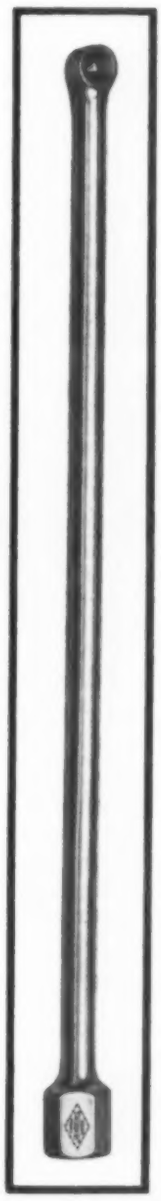
CAPLESS. No cap to lose or handle. Non-removable valve head. Dirt and water cannot enter.
STAINLESS STEEL SPRING Non-rusting. Lasts the life of the valve.
BRASS PLUG. Self-cleaning . . . rustproof. Positive closing. Absolutely tight.
SMOOTH RUBBER SEAT Resists action of heat and oil. Eliminates broken valve stems and destruction of tube. Cannot score or scratch valve plug. Closes air-tight instantly. Guaranteed leak-proof.
BRASS INSERT Reinforces and protects valve seat, valve plug and spring as well as entire valve.

WE PROMISED YOU

A SENSATIONAL ANNOUNCEMENT—

here it is! A truck valve embodying *every* feature of the Jenkins Capless Tire Valve that has met with such wide acceptance for passenger cars and taxis . . . plus . . . one valve for all sizes of tubes on Trucks and Busses — single or dual equipment. For safety, economy and longer tube life insist on the Jenkins Capless Truck Valve when ordering tubes or replacement valves. They cost no more.

JENKINS BROS. · BRIDGEPORT, CONN.



The new Jenkins extension tool makes inflation and deflation easy

JENKINS CAPLESS TRUCK VALVE

WE DESIGN and BUILD

CONSTRUCTED OF HIGH-TENSILE STEEL,

THIS ARTICLE received the Second Main Award of the Automotive Classification, in the $200,000 Program sponsored by the James F. Lincoln Arc-Welding Foundation, Cleveland, Ohio, in which savings to industry of $1,600,000,000 were indicated by the wider application of arc-welding.

THE PRINCIPAL problem in the design of this equipment was to obtain the most value for the least expenditure of cash. This was accomplished without sacrifice to crew convenience, efficiency of the unit or sturdiness in construction.

In deciding the question of chassis capacity, a preliminary study was made of tentative design, based on our previous designing experience in body building, coupled with an investigation of stock body-designs and those developed by other power companies. It was found that what had gone before, and the results of the efforts by the commercial body builders, and the results of the work of other companies in body development, would produce heavier body weights than was desirable for the unit we had in mind. These heavier weights we found were in a range between 2,700 and 3,000 pounds.

Such body weights, when combined with the weight of the equipment, tools, materials and crew, would require the purchase of a chassis in the next heavier weight class than the one which was finally decided upon and purchased. It was thought that a body of the size that this one is, could be built in simple, open-hearth steel, fabricated from sheet, and arc-welded within the above weight range, with the possibility of using rivetted construction instead.

However, as previously stated, the weight range mentioned was out of the question. Likewise, if the body were constructed of wood and fitted with forged reinforcements, the weight (we knew from our own experience) would be far beyond this range. The natural course, then, was to avail ourselves of the benefits of making a steel body fabricated from available sheet steel of extremely high strength and yield-point, and highly resistant to the effects of corrosion.

After preparing a design and computing the weight of a body built from it, using this character of material, our selection was a high-tensile steel not available at the time of any previous body design development by the company for which this body was built. Our computations indicated that a body in which high-tensile steel was the major material used, would have a weight in a range between 1,800 and 2,000 pounds. (After completion of the body and weighing the vehicle, we found it to weigh 1,958 pounds).

The design of this body is based on a construction in which the cross-members of the body rest directly upon the truck sill or frame channels, depending upon the side-wall construction for longitudinal strength without longitudinal body sills to form an independent body underframe. The cross-members may be seen in Fig 1.

The superstructure at the sides of the body is formed by a system of posts in two sets. From their junction with the cross-members to which they are welded, these posts extend vertically to a point 18¾" below the top rail, where the channel flanges are miter-cut and the web bent over to form rafters which support the roofs over the spaces formed between the outer and inner post systems. At the miter-cuts in the flanges of these outer posts, the section is bent over and is arc-welded with full-penetration butt-welds; and where the rafter portion of the outside posts joins the inside post, their ends are similarly butt-welded, also with continuous-bead, full-penetration weld.

FIGURE 1—EARLY STAGE OF CONSTRUCTION

a LINE-TRUCK BODY

FABRICATED BY ELECTRIC ARC-WELDING

By Fred S. Beach, Sr.,

Designing Engineer,
Northwestern Electric Company,
Portland, Oregon.

The inside posts extend vertically from the cross-members, but are spaced 10¼" inward from the outside faces of the outside set of posts. At each cross-member the posts in this system are fitted and securely welded into the cross-members by continuous-bead arc-welds. These posts are box-section, formed from sheet as channels with closure strips welded between the outer edges of the channel flanges with continuous-bead arc-welds for the full height of these posts.

From their junction with the cross-members these posts extend vertically to the inside of the top rails and are arc-welded with continuous beads, one bead at each of the free edges of the channel post flanges, along the flanges at top of cross-members, down the post on each outer corner of channel posts inside the cross-member and across the back of channel post inside the cross-member.

The box-section posts are similarly welded with continuous-bead arc-weld inside the cross-member and across at the base and across the width of the post at the cross-member at each side. All four posts are welded inside the top rail. After the posts were welded to top rail, soffit strips were fitted to the inside of the top rails in the spaces between adjacent posts. These soffit strips are arc-welded with continuous beads along both flanges of the "U"-section top rail.

Between the posts are diagonal braces stiffened with struts between these diagonal braces. All of these diagonals with their bracing struts show in Fig 3.

At the outer ends of the cross-members are 16-gauge plates formed as channels with narrow flanges extending upward, which form the bottoms of the lower row of material bins, which, together with the rear wheel-housing arch, combine to form the basic longitudinal-strength members of the body construction. These bin bottoms and wheel-housing arches are continuously welded where they join the cross-members previously referred to. The inside systems of body post diagonal braces, bin bottoms, inside and outside bin walls and tops and the top rails combine to form approximate trusses along the outside at right-hand and left-hand sides of the body.

Between cross-members behind the rear axle, drawer-slide angles are tack-welded to these members; these accommodate two shallow tool drawers which slide below the underside of the floor of the bulk loading space. These drawers are intended for carrying flat tools, such as hand-saws, one-man cross-cut saws and small tools such as chisels, auger-bits, stone drills, etc., which can be accommodated in drawers of this shallow depth. Another function of these drawers is for carrying standard rubber line-hose. Ahead of the rear axle is another shallow drawer, but made wide enough to accommodate a two-man cross-cut saw of five-foot length. It has the same depth as the two previously described drawers.

Referring to Fig. 2, which shows the body in a somewhat advanced state of completion, may be seen the slots in the body side wall to accommodate the drawers just described. There is also a series of three stowage compartments below the body floor, winch and cab floors, accessible through three doors.

The construction of the compartments, side walls and bottom form a structural tie between the front of

(*Please turn to page* 22)

FIGURE 2—A LITTLE MORE ADVANCED

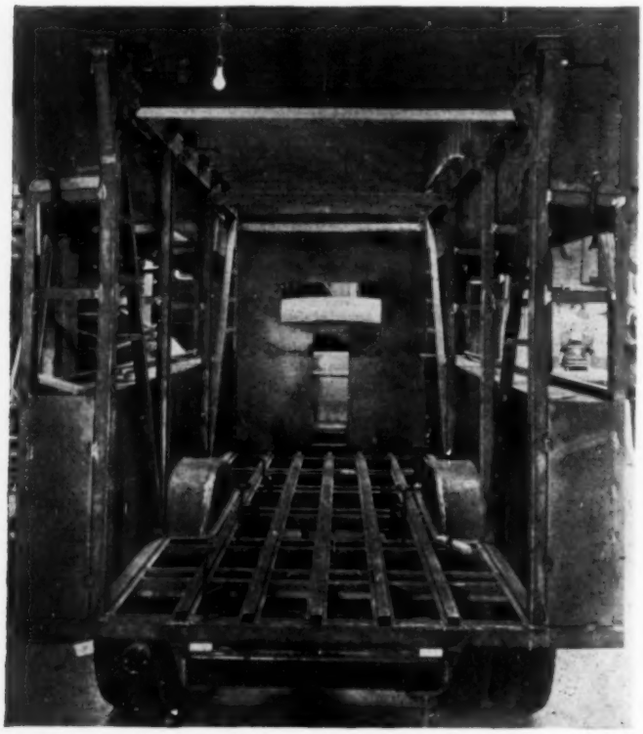


FIGURE 3—This view of the partly completed body shows the diagonal braces, stiffened with struts between them. . . . It also shows the cross-sills and the fore-and-aft sills very plainly.

the cab and the body proper, where it would be otherwise cut in two by the winch frame. The intention of this design is to make the winch accessible on occasion when major repairs are required on the winch. The winch was mounted (in the shop of the winch manufacturer) before constructing the body.

The method of anchoring the body to the chassis is considerably more rugged and safer than the method generally employed for attaching custom-built bodies to truck chassis. The principal reason is that in this form of attachment the holding bolt at each anchor is "in shear" and the whole combination has a minimum weight and stiffens the cross-members at their points of support on the chassis frame. The fastening bolts are all placed on a line of the neutral axis of the truck frame side channels, and thus do not have a tendency to weaken these frame members as the tension of typical double-bolt or "U"-bolt body anchorages would have, due to the fact that the latter method of attaching bodies to truck frames puts the fastening bolts in tension and when this occurs, such bolts are liable to be drawn up tight enough to buckle the channel frame sills, which would naturally weaken these members.

Referring to Fig. 4, there will be noted a slight difference in the construction of the rear outside body cross-member. This item is the heaviest single-unit member of the whole body construction. It is formed of #10 sheet; and, inasmuch as two bodies only were under contract, it would have been uneconomical to build special die equipment for press-forming this member. Consequently it was laid out and the sheet trimmed to shape, cuts were made where the lower flange inclines from the full depth at the center section to the outer ends. The forming was done by using a hydraulic wheel press for which power brake dies were made by the contractor's shop on other work preceding this construction.

Realizing that the unforeseen has a way of happening when least expected, we decided that if for any reason this truck was tipped over, the most usual side on which it would lie after being tipped over along a road would be the right-hand side, and regardless of the fact that other designs have windows in the crew cab on the left-hand side, this would not afford as free escape from the tipped-over truck as a door would have, made exactly like the one on the right hand side. Therefore, this body was designed with doors on both right and left-hand sides, and with both of them alike.

This truck unit is provided with a pole derrick which is a simple gin-pole made of selected yellow fir, clear spar stock, and turned to the conventional curved taper, commonly used on ship spars. The upper end is slotted for the head sheave of the gin-pole and a strap covers the sides of the upper end while in the sheave slot opening, wearing plates are provided at the pin hole, for the sheave. An anchorage is provided just below the sheave slot for the four guys which support the pole when it is raised. Referring to the picture at the head of this article, the gin-pole may be seen in the position in which it is carried while the truck is on the road.

The gin-pole is supported on the spindle shaft at the rear of the truck for carrying only, which is a secondary function of this shaft and when the pole is set up as shown in Fig. 5, the foot of the pole rests on the center of the loading-space floor at its rear, and where the load is taken and is transmitted to the ground through the heavy rear outside body cross-member to the stiff legs.

The body loading space is covered with a canvas roof which is carried by the top bows previously described. This canvas roof is held along its two sides and the front end by fasteners and the rear edge is

(*Please turn to page* 24)

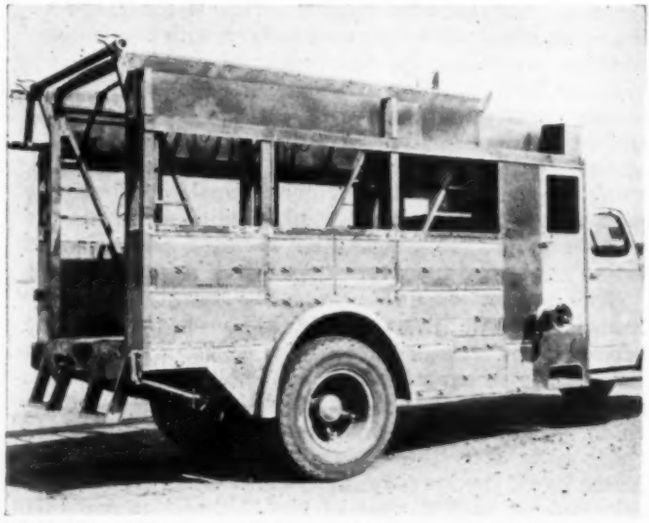


FIGURE 4—This view of the practically completed body shows many of the construction details quite plainly, especially the fabrication of the unique rear outside body cross-member.

Quicker, Easier, More Economical Frequent-Stop Deliveries with

NEW 1939

PAK-AGE-CAR

Model 91—90" Wheelbase
Model 117—116" Wheelbase

for DAIRIES, BAKERIES, LAUNDRIES, DRY CLEANERS, PARCEL DELIVERIES, ETC.

PAK-AGE-CAR is not just another truck, but a specialty vehicle, tailor-made for house-to-house deliveries. Fleet owners report PAK-AGE-CAR is the easiest, most time-saving vehicle to operate, work in and deliver from—due to its rear-engine construction and design; stand-and-drive operation; wide doors; low, perfectly level floor; roomy, accessible merchandise space; and easier parking, turning and handling. PAK-AGE-CAR is amazingly economical; on actual routes it has saved 40 to 50% of the gasoline, compared with conventional vehicles. Additional saving is offered by the Replaceable Power Unit, which cuts down the number of vehicles needed. *Descriptive literature sent on request.*

PAK-AGE-CAR CORPORATION, Connersville, Ind.

Paid for out of Gasoline saving
"We bought 6 PAK-AGE-CARS, and then 2 more. These were paid for out of gasoline savings."—Franklin-American Laundry & Dry Cleaning Co., Columbus, O.

Most easy to work out of
"We have found PAK-AGE-CAR the most easy-to-work-out-of and the most economical to operate."—Valley Farm Dairy Company, St. Louis, Mo.

Most economical to operate
"We are now using 36 PAK-AGE-CARS on our house-to-house routes and find them to be the most economical to operate."—Hankey Baking Company, Oakdale, Pa.

SEE PAK-AGE-CAR AT THE TRUCK SHOW, SPACE 46

Finest House-to-House Vehicle Ever
"We consider PAK-AGE-CAR the finest vehicle for house-to-house delivery of bakery goods we have ever seen."
—Morrison-Lamothe Bakery, Ltd., Ottawa, Canada.

Most Dependable and Economical
"We are very well pleased with PAK-AGE-CARS; they are our most dependable and economical source of delivery."
—Elmhurst Dairy, Inc., Detroit, Michigan.

attached to the rear top bow by means of leather straps.

By way of explanation, our procedure with this unit was as follows: After its purchase and delivery, the vehicle was weighed before any equipment was put on the chassis. After installing the winch it was again weighed, and the first weight was deducted from this last one, the difference being the weight of the winch and its necessary accessories.

After the body was added, a similar procedure was resorted to and all accessory equipment attached during the construction of the body, (such as reinforcements for trailer coupling as well as the coupling itself), was carefully weighed before being permanently installed. The stiff legs and their accessories, not being actually a part of the body, these weights were deducted from the overall weight obtained after completion of the body.

Reverting to the preconstruction period, our weight and loading schedule showed us that we could purchase a chassis rated to weigh 15,000 pounds inclusive of body and equipment, fuel, oil and water and the pay-load. Had we been forced into the purchase of a heavier chassis or one of 20,000 lbs. gross loaded weight by using a considerably heavier body than the one we built, our cost of the chassis would have exceeded that of the one purchased, by $650.84.

FIGURE 5—The finished body, ready for work, with the gin-pole set up with its foot resting on the center of the outside body member at its rear. . . . Be sure to read all of the details of same.

The unit was prepared for use in urban and rural line construction service in a neighboring state, where the gross load rating is the basis of determining the cost of licensing trucks. For a truck weighing and rated at 15,000 lbs. gross, the annual fee in addition to the regular license fee of $3.00 is $18.00, but for a truck weighing 20,000 pounds gross, the additional fee is $45.00, making a difference of $27.00 per year.

The company operating this truck follows a policy of using its trucks for a minimum of ten years. This term can be considered here as the useful life of this vehicle.

Considered on this practical life basis, we compute interest at the rate of 6% a year for ten years on the cash saving of $650.84 and we find that the annual interest is $33.05, whereas for a ten-year period it is $330.50, and the sum of principal and interest is $981.34.

If we apply interest to the license saving at the same annual rate, the first year's savings would be computed and accumulated for ten years; similarly the second year's savings would be computed and accumulated for nine years and the third year for eight years, and so on, until the last year for one year. Computed by this method for ten years, the interest on $27.00 per year for ten years would be $89.12, making the total of principal and interest $359.12 and adding the two gross items of $981.34 and $359.12 shows a gross of $1,340.46.

In addition to this saving which is one of the benefits resulting from the use of a body of this design, a comparison of the cost of this unit and the one which it replaces and which was purchased and placed in service in 1928, the company's records show that this earlier unit cost $6,439.00 and the new unit, equipped with this latest body design, shows a total invoiced cost of $3,380.69 to which is added $600.00 as design and inspection cost making a total of $3,980.69. The difference in the cost of the two is $2,458.31.

Neglecting the savings by the reduced license cost because of the differences in arriving at the license fee cost is strictly one of local state laws, we add the gross amount of cash savings in the purchase price of the chassis to the difference represented by the cost saving effected by this body design, and we have $3,449.60 as their sum. If interest is applied at the same rate to the cost difference item, a sum of $1,474.98 should be added to this sum which would bring this to a gross amount of $4,924.63, including all interest items as applied to the full useful life of the unit.

Substantiating the cost of this unit, the invoice cost detail is as follows:

Item	Invoiced cost
Chassis	$1,891.44
Winch (installed complete)	375.00
Body	1,016.45
Pole derrick	59.80
Stiff legs	38.00
Actual engineering time	600.00
Total	$3,980.69

Based on the invoice cost of $1,016.45 and a scaled weight of 1,958 pounds, the unit cost of the body is 51.9¢ per pound. Had rivetted construction been employed, approximately 10% more weight would have been added to the weight obtained by using welded

(*Please turn to page* 64)

FRUEHAUFS *Everywhere*

● THE record of Fruehauf Trailers in the service of over 100 different industries is an "open book" for all to see. These attractive commercial vehicles are on the job everywhere—serving and "standing the gaff" of hard going in all lines of trade. Everywhere the professional haulers, the men whose only source of income is in the efficient operation of haulage equipment, have made Fruehauf Trailers their first choice—using more Fruehaufs than any other make! This is a tribute that we deeply appreciate and a responsibility of which we are keenly aware. Before you buy any haulage equipment, judge by what others are doing. If you want economy — use Trailers. If you want utmost economy—use Fruehaufs.

World's Oldest and Largest Manufacturers of Truck-Trailers

FRUEHAUF TRAILER COMPANY
Detroit, Michigan
10913 Harper Avenue

Sales and Service In Principal Cities

FRUEHAUF TRAILERS *"Engineered Transportation"*

REG. U.S. PAT. OFF.

MORE FRUEHAUF TRAILERS ON THE ROAD THAN ANY OTHER MAKE

LETTERS TO THE EDITOR

SAFETY BOUQUET

● *Dear Mr. Fischer:* I get a great deal of pleasure out of reading your column, *"Stripping the Thread,"* each month.

I notice that you are devoting more space to Safety, and want to congratulate you, since I am sure that we can both agree that in Safety quite often lies just the difference between a profitable and an unprofitable fleet operation.—*James G. Hayden, Fleet Engineer, National Safety Council, Chicago, Ill.*

●

CAN 14 MEN BE WRONG?

● *Dear Mr. Fischer:* It may interest you to know that through 14 subscriptions to your magazine, FLEET OWNER, our fleet safety engineers keep themselves advised of developments in mechanical design that make for safer vehicles and fewer accidents.—*W. E. Billings, Fleet Engineer, Liberty Mutual Insurance Co., Boston, Mass.*

●

SAYS "PHOOEY ON FOURS"

● *Dear Mr. Fischer:* An item in your *"Editor's Column"* of a recent issue indicated that there seemed to be a demand for 4-cylinder engines, and that the economy of a 4-cylinder engine would appeal to bakeries, dairies, laundries, florists, etc.

As an experienced operator, I, for one, do not agree. Of course, 4-cylinder motors made a hit with the "dubs"—most any grease-neck could flatter his vanity by finding and cleaning the missing plug in a Four.

Many who opine on the "Four" had their first experience with them. They now reminisce on the low cost of their operation, which is apparently an apology for their own present high costs. The greatest percentage of dyed-in-the-wool 4-cylinder boosters kept no records of their costs. True, records were kept, accountants knew what the costs were, but since they had nothing to compare them with, they were reasonably satisfied.

If the Fours could be kept running, *that* was the accomplishment, from the mechanics' standpoint. These mechanics have now progressed to better jobs, and are now belly-aching about present operating costs as compared to previous costs, when, in reality, they knew *nothing* of costs when operating Fours.

You can take it from one who *knows*, the Four was never comparable to the Six or the modern V-8. A Four with abilities comparable to the V-8, uses more gas and oil and vibrates like Hell! It cannot do 40,000 miles any better than the V-8 does 80,000 miles. The Eight has almost twice as many parts, but is *entitled* to them for the savings and satisfaction it gives the operator.

And don't forget, the mechanic who has not progressed should not be privileged to get his "two cents worth of say" in matters of this kind, as someone *might* listen to him, take him seriously, and impose a great headache on many good drivers of commercial vehicles. . . . I know, because I fell for it in 1932! . . . And the poor salesmen are still driving some of them.—*Anonymous Operator, Chicago, Ill.*

●

GOVERNOR DEVELOPMENT

● *To the Editor:* On page 45 of the July issue of FLEET OWNER, there is a request for a governor that governs *vehicle* speed, rather than engine speed.

At the present time I am associated with the inventor of a vehicle governor which will control the vehicle speed and can also be used to control engine speed, if desired. However, we are now in the process of making further improvements and are not at liberty to give you the full details.

If any of your readers desire information in regard to this governor, we will be glad to hear from them and promise to give them the information at our first opportunity.—*E. J. Chalstrom, 1429 Magnolia Ave., Long Beach, Calif.*

●

SHORT AND SWEET

● *To the Editor:* Just a line to let you know that I find your monthly magazine FLEET OWNER, a very valuable asset in my business.—*H. P. Conlon, Conlon Bus Company, Toledo, Ohio.*

"BEST" MEANS "NONE BETTER"

● *Dear Mr. Fischer:* You may chalk up another participant to your Question-of-the-Month Club. I have been reading your magazine, FLEET OWNER, for several years, but have not answered any questionnaires until recently.

Your magazine, in my opinion, is the BEST in its field. . . . And I read several other truck magazines, too.—*Karl Koch, Isaly Dairy Co., Youngstown, Ohio.*

●

SUGGESTS WE DATE 'EM

● *Dear Mr. Fischer:* A discussion arose the other day in reference to oil filters and to refresh my memory, I turned to my folder in which I keep FLEET OWNER'S Question-of-the-Month summaries.

One thing I noticed was that these summaries are not dated. I wondered if it would not be a good idea to date these; may I offer it as a suggestion? —*E. H. Conger, Supt. Supply Department, Employers' Liability Assurance Corporation, Ltd., Boston, Mass.*

●

ANOTHER FOUR HEARD FROM

● *Dear Mr. Fischer:* On page 9 of your July issue there appeared an item about 4-cylinder trucks, and we notice, where you enumerate the manufacturers of 4-cylinder jobs, that Garford is not mentioned.

Our company is making a 4-cylinder, ¾-ton truck, as well as several 6-cylinder models, and we are now in a position to establish distributorships for same. Although our business has been primarily export, we are interested in securing domestic business as well.—*S. W. Winder, Export Manager, The Garford Corporation, Lima, Ohio.*

●

"LOOK FORWARD TO IT"

● *Dear Mr. Fischer:* We are still enjoying and profiting from our experiences, so to speak, in reading your splendid magazine, FLEET OWNER. . . . We look forward to its arrival each month.—*L. S. MacRobbie, Oak Park Nurseries, East Patchogue, L. I., N. Y.*

MORE PROFITABLE FROM ANY ANGLE

ECCENTRIC VALVE SEAT GRINDER

WET TYPE VALVE REFACER

Some weeks ago I purchased one of your valve seat grinders which I consider one of the most valuable pieces of equipment in our maintenance department.
(Name of Shop on request)

COSTS LESS TO OWN AND OPERATE

FACTORY PRECISION AND FINISH

During the past several years I have been searching for a machine that would work with the precision of the Hall Valve Seat Grinder . . . I would not part with your grinder for four times its cost.
(Name of Shop on request)

I had approximately $300 worth of what I thought was the finest equipment for valve seat work but was so well convinced of the superiority of the HALL method that I disposed of my other equipment at a big loss and replaced it with HALL.
(Name of shop on request)

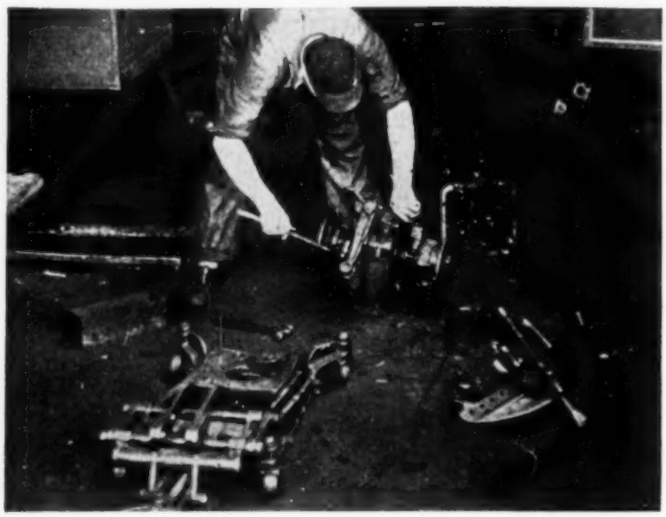
One truck stalled on the highway with valve trouble generally costs more than the HALL valve servicing equipment that would have prevented the trouble. To keep your vehicles moving with maximum economy from satisfactory valve performance and with thousands of extra miles between valve jobs, you need the factory approved HALL ECCENTRIC Valve Seat Grinder and the HALL Wet Type Valve Refacer. Consult your Jobber or write the factory today for complete information.

THE HALL MANUFACTURING COMPANY
1620 Woodland Ave. TOLEDO, OHIO

HALL

SYNCHRONIZED VALVE SERVICING EQUIPMENT

What 174 Operators Do About Power Brakes



By H. Clay Fischer,
Editor, FLEET OWNER

OUR RECENT Questionnaire on Power Brakes (No. 87 in our Question-of-the-Month Club) brought replies from 174 operators, the concensus of opinion being that vacuum-operated power brakes are most desirable for light trucks, while air brakes seem to be the favorite for use on heavy trucks, tractor-trailer combinations and buses.

Of the 174 fleet men who responded (thanks very much, boys) 141 of them are using power brakes of *some* kind, on some or all of the vehicles in their fleets. The other 33 who replied to the questionnaire, do *not* at present operate any power brakes, but are seriously interested in the subject.

The figures on preference for the different types of brakes, which we are going to give you now, are based *principally* on experience with power brakes, and perhaps somewhat on personal opinions. And since personal opinion can sometimes make or break a product, we must take both very seriously. In answer to the first question which asked, *"Which type of power brake do you think is best?"*, here's how the answers stacked up:

For Use on Light Trucks: Vacuum Power Brakes — 100; Air Brakes — 16; Electric Brakes—2; No answer —23.

For Use on Heavy Trucks: Air Brakes—88; Vacuum Power Brakes — 25; Air or Vacuum — 4; Electric Brakes—2; No answer —22.

For Use on Tractor-Trailer Combinations: Air Brakes—66; Vacuum Power Brakes—20; Air or Vacuum—2; Electric Brakes—6; No Answer—47.

For Use on Buses: Air Brakes—39; Vacuum Power Brakes—5; No answer or no Buses—97.

There is little comment that we can make regarding the foregoing question and its answers; it's just about what we expected the preference to be. It is interesting to note the *comparatively* great number of people who mentioned electric brakes, especially since such products have not been on the market as long as the other types. (It shows what a little good advertising will do).

Our next question asked *"What is your favorite make of air brake?"* . . . Again, as we expected, the leading make was expressed almost unanimously. . . . In other words, 73 fleets chose *one* make, while 1 fleet chose another make, with 67 "no answers" to this question; the latter perhaps because they have had no experience with air-brakes. . . . If you cannot guess the make of air brake that is so popular, that's one of the things we cannot give you here. (More about this, later on.)

A not much different picture was obtained, from the answers to the next one, which asked *"What is your favorite make of vacuum power brakes?"* . . . Here again, *one* make was outstandingly popular, with 92 votes. . . . The balance of the makes had 6, 2, 2, 1, 1 and 1 vote, respectively, while 36 fleet men did not answer the question.

Of course you would like to know which makes are which—the ones that are so popular with fleet men, and the ones that are in the dog-house. We have no objection to letting you know, but it's one of those things that we do not print in *this* magazine. We *do* have this information, however, on the *confidential* reports which are sent to all those who participated in the survey. If you worked with us on the power brake questionnaire, you have yours by this time. If you didn't, and would like to get a copy of the confidential summary, we will trade you one, in exchange for this month's questionnaire, properly filled out. You'll find it on page 51 of this issue, and you'll find the new subject of great interest at this time—Tire Valves. . . . So if you want the dope on the power brake survey, just tear out this month's questionnaire, fill it out and write across the *bottom* of it *"Send the Power Brake Survey."* . . . We promise to send it promptly, and also to send you a summary of the Tire Valve questionnaire when it is ready. . . . Fair enough? We think so.

In order to get a line on power brake *use* as well as preference, we next asked *"What makes of power brakes are you using?"* . . . The answers to this are of course, confidential, but they are also contained on our summary. They seem to follow the preference figures quite closely, which means that the preference figures are worth just so much *more* than they would

Question-of-the-Month Club - - Number 87

be, if they were based entirely on *opinion*. Get it? All of this stuff is on the confidential copy; if you desire it, "you can get it if you try."

That fleet operators are "choosy" is seen in the answers to the next question, *"Do you specify the make of power-brake to be used on new vehicles?"* . . . 91 fleet men said "Yes"; 39 said "No"; and 11 did not answer. . . . Of course, in some cases, on new equipment, it is not possible to change around the makes of power brakes, which are sometimes installed at the truck factory; perhaps that's what the 39 operators had in mind when they said "No."

Installing power brakes on *present* or old equipment, is a different story. For, 109 operators are darn careful to specify the make they want, while only 5 seem to be indifferent; and 27 did not answer this one. . . . so, we will repeat, fleet men are quite "choosy" on the subject of power brakes.

In order to get an idea as to where and when power brakes are being used, we next asked *"What weight must a unit be, before you specify power brakes?"* . . . Answers to this one ranged from as low as 3,000 pounds *gross*, to as high as 26,000 pounds *gross*. . . . However, 10,000 lbs. was the most popular figure given, with 18 votes to its credit; in other words, 10,000 lbs. and up, gross vehicle weight. . . . Several operators replied in terms of truck *ratings*, giving answers such as *"On all vehicles of 1½-ton capacity and up,"* etc. Several also said that they have no set rule on the weight basis, but that the addition of power brakes depends largely on the type of service in which the vehicle will be used.

So, if your gross vehicle weights run from 8,000 to 10,000 lbs., it seems to us that *some* kind of power brake equipment should be used. You can use the confidential summary, (if you have it) as a guide in selecting the makes, if you want to. Far be it from *us* to tell you what make to use. Or, if you care to, you can read the advertisements.

Service on power brakes is, of course, something highly specialized. Efficient factory branches and service stations are maintained by the leading manufacturers, almost everywhere. However, from our next question, which asked *"How do you handle service on power brakes?"*, we found that 91 fleets do *all* power brake work in their own shops; and that 34 farm-out all of it. . . . Nine fleets do some in their own shops and farm-out some of this work, perhaps exchange-units, etc.; and 7 did not answer the question. To us, the factory-reconditioned exchange-of-unit proposition seems splendid. In fact, we practice this on our own stuff—fuel-pumps, distributors, carburetors, brake-shoes, etc., etc. Some day we are even going to exchange our cylinder assembly for a factory-reconditioned one; that is, if we keep the old bus long enough.

A controversial question came next, asking *"Which gives you more trouble, power brake systems or the brakes themselves?"* . . . From our findings it looks as though the wagon itself causes more trouble than the horse, for, 87 fleets reported that the actual brake assemblies (linings, drums, linkage, rods, hydraulic apparatus, etc.) give more trouble than the power boosters. . . . On the other hand, only 34 fleet men seem to have more trouble with the booster apparatus. . . . And 20 did not answer this question. . . . *There's* something to think about, if you had previously entertained the idea that the addition of power brakes to your equipment would give you more headaches; it just doesn't seem to work out that way in actual use, our survey tells us.

Just to make our questionnaire a bit more interesting, we injected a question on brake testing, asking *"Which brake-test do you consider best?"* . . . "Actual stopping distance" seems to be the thing that interests most fleet men, 108 of them declaring that this is the *best* test for them. . . . "Decelerometer readings" came next, with 18 votes. . . . The floor-type of brake tester is considered best by only 16 fleet operators surveyed. . . . Personally, we think that you can find out a lot of things with a *good* floor-type brake testing machine, especially such things as out-of-round drums, out-of-center brake-shoes, uneven brake-shoe contact, etc., etc., which it is almost impossible to detect by any such thing as sliding the wheels on the floor, road, etc. But people are not going to *know* about those things

(*Please turn to page* 65)

METRO BODIES!

TWICE THE LOADSPACE ON A LIGHT CHASSIS

Lifts or lowers like a sash—always out of the way—stays put in any position. Patents pending.

DOUBLE CAPACITY FOR PEAK LOAD DAYS, ECONOMY OF A LIGHT CHASSIS FOR ALL DAYS

METRO BODIES EXCEL for Light, Bulky Loads—all the Payload length, width and height needed for PEAK LOAD DAYS with the low operating costs of a ½- or ¾-ton chassis EVERY DAY. Metro's 9-foot length behind driver affords 250 cubic feet of loadspace—twice as much as a conventional ½-ton body and even more than a standard 1½-ton panel body. There's also a new 11-foot Metro Body that gives you 305 cubic feet of loadspace on a 1-ton chassis.

Look at the publicity value of Metro's different appearance. The driver sits up front as in the latest buses. But you sit in your office and notice the increased loads carried, increased sales, fewer accidents and lower delivery costs when you

Ask your Chevrolet, International Harvester, or Dodge Dealer

METROIZE TO ECONOMIZE

9	FOOT LOADSPACE	68" wide, 62" high, 250 cubic feet on a 1/2- or 3/4- ton chassis — 15 1/2 feet overall.
11	FOOT LOADSPACE	68" wide, 62" high, 305 cubic feet on a 1- or 1 1/2- ton chassis — 18 feet overall.

CUT BULKY LOAD COSTS

WRITE YOUR FIRM NAME ON THE MARGIN BELOW AND MAIL TO THE METROPOLITAN BODY CO., BRIDGEPORT, CONN. FOR PRICES AND CATALOG.

What This Revolutionary Stainless Steel Discovery Will Do for Any Truck, Bus or Car

LET your jobber give *you* a demonstration of Sterling Steelductor Ignition Cable on one of *your* own units. See how this revolutionary stainless steel discovery stretches gas mileage, adds miles to top speed, makes winter starting easier, and lengthens the life of the entire ignition system.

Steelductor uses 7 strands of stainless steel instead of the conventional 19 strands of copper. In the demonstration you will see how the copper cable misses and cuts out at high speeds and how it skips at idling speeds. And you see Sterling Steelductor shooting a spark across the gap with clock-like precision.

Here are some of the definite Sterling Steelductor advantages: *1.* Spark discharge with lower battery voltage. *2.* Increase in top speeds. *3.* Lower idling speeds. *4.* Less burning of spark plug electrodes. *5.* Decreased burning of breaker points. *6.* Less misfiring from fouled plugs. *7.* Internal corona avoided. *8.* Effect of heat on insulation minimized.

Two years use on naval aircraft has proved this Stainless Steel construction—and now Sterling, exclusively, offers it for automotive use. Sterling Steelductor —newest addition to the line of Sterling Silver-Sheathed Cables—is mechanically, electrically, and thermally superior to any other type of ignition cable.

Phone your Sterling jobber for a demonstration. If you don't know a Sterling jobber's name, mail coupon for complete information.

Sterling Steelductor Automotive Cables

"AN AUTO-LITE PRODUCT"

STERLING CABLE CORPORATION
Port Huron, Michigan
Please send sample of revolutionary new Sterling Steelductor Ignition Cable and give me the name of a Sterling jobber.

Name.....

Firm Name.....

Address.....

City.....
FO

Electrical
.... TROUBLE-SHOOTING ....

A SERIES of articles on Starting, Lighting and Ignition Trouble-Shooting, written so that any Fleet Mechanic can readily grasp the basic fundamentals.

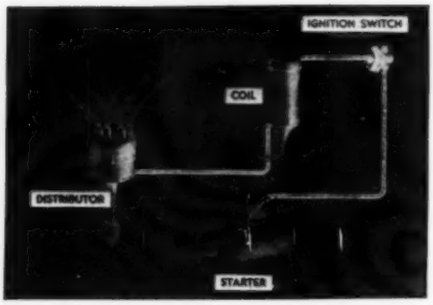


FIGURE 1—The ignition circuit is made up of the primary and secondary circuits, as is shown in the above visualized diagram.

ARTICLE II—How to Check the Ignition Circuit. . . . A low-reading Volt-meter is the only equipment required thus far—in addition to ordinary tools.

LAST MONTH the first of this series of articles appeared, covering the starting circuit. If you haven't read it, we recommend that you do so now, before reading this article, which progressively deals with the proper checking of the ignition circuit, using the low-reading volt-meter, as illustrated on page 20 of our October issue.

The ignition circuit (as you well know) is made up of the primary and secondary circuits. In making a complete check of the electrical system, the examination of the starting circuit (as related last month) should be followed by a check of the ignition circuit.

The primary circuit of a typical single-ignition system is shown in Figure 1. It includes the lead from starter-switch (live terminal), to ignition-switch, the ignition switch itself, the lead from the ignition-switch to the coil, the primary winding of the coil, the small lead from the coil to the distributor, and the distributor itself.

Our first test will be as shown in Figure 2. With the ignition-switch ON, and the distributor-points CLOSED (so that current will be *flowing*) place one prod of the volt-meter on the battery-cable terminal where it is attached to the starter-switch (live lead) and the other prod of the volt-meter on the "battery" connection of the coil. With the switch *on*, and the points *closed*, current will be flowing through the wire and switch, and the use of the volt-meter, as illustrated in Figure 2, will indicate any excessive voltage-drop in the primary circuit from the starter-switch terminal to the coil.

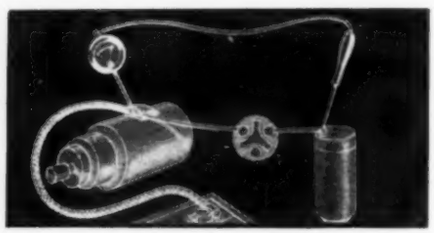


FIGURE 2—Testing for voltage-drop between live lead and ignition coil. . . . The switch must be on, and the points closed in making all volt-meter tests like this.

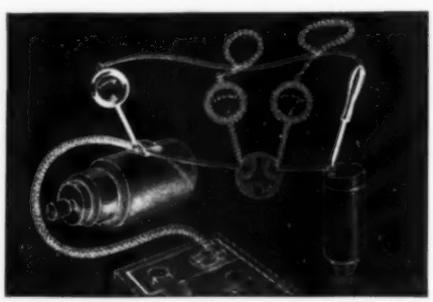


FIGURE 3—If voltage-drop is noted when checking as in Figure 2, it can usually be traced out by moving the volt-meter to different locations, as dotted lines show.

A reading of more than two-tenths of a volt (voltage-drop) indicates excessive resistance in some part or connection of this portion of the primary circuit. This resistance can be found by the usual tracing method, as illustrated by the dotted outlines in Figure 3. Move the volt-meter prod from the starter-switch terminal to each successive part and connection, until the high resistance is found.

In Figure 4 is shown how to properly test the distributor housing for "ground," and also the contact-points for high resistance. Please note that the

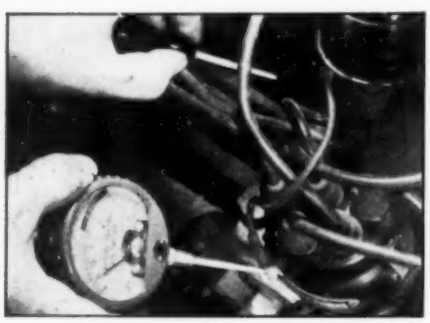


FIGURE 4—Testing distributor-ground connection. . . . Ignition switch must be ON and points CLOSED in making this, and all other similar tests, to get voltage-drop readings.

FIGURE 5—Arrows point to spots that must be examined—the terminals of the high-tension cable and the cable itself. . . . Corroded and brittle cables should be replaced.

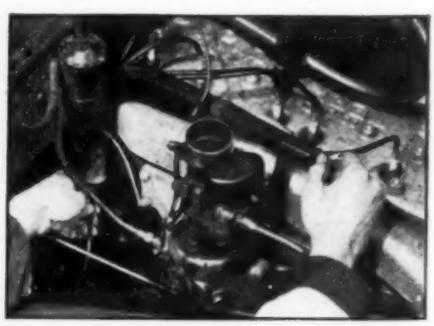
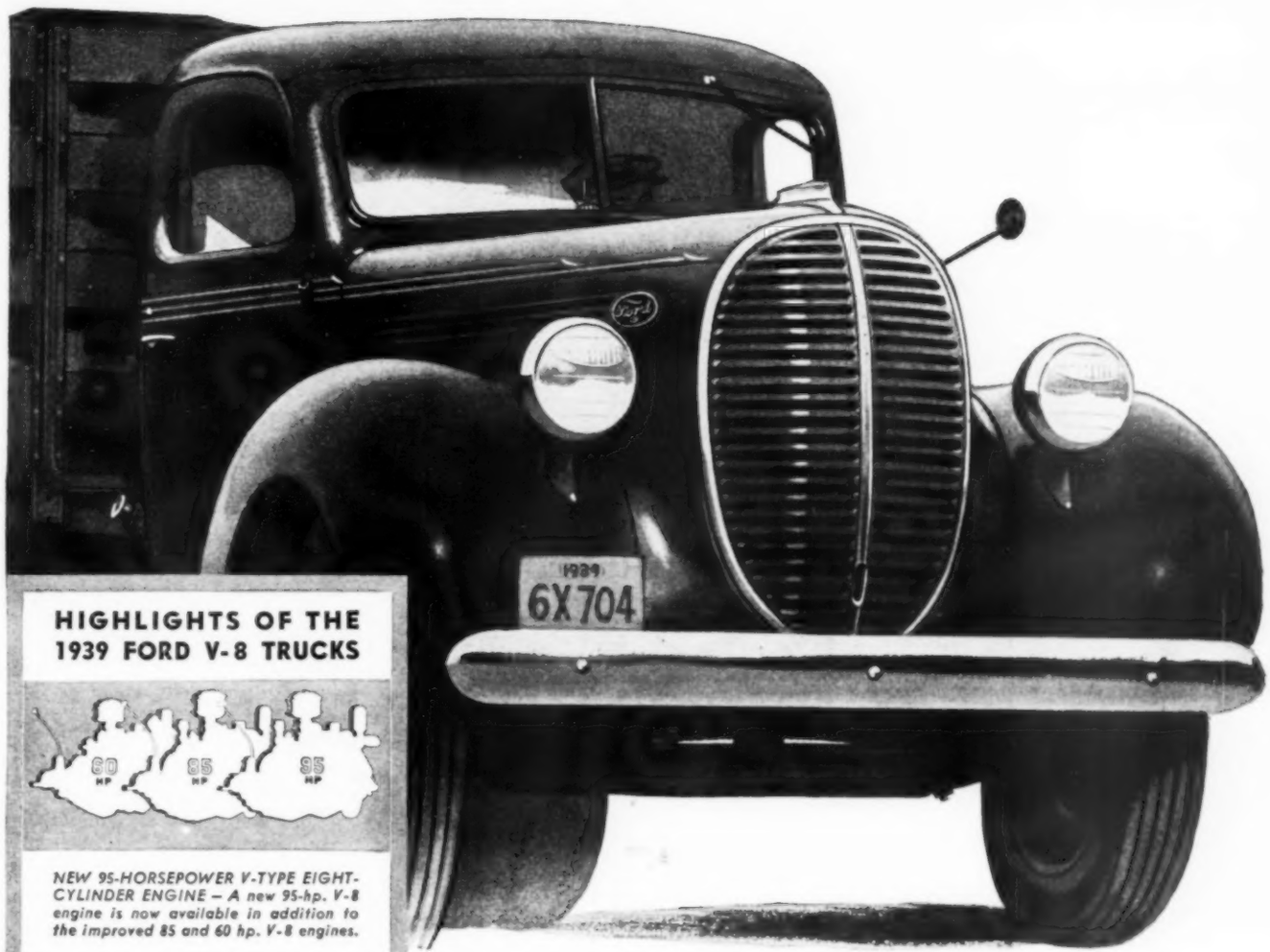


FIGURE 6—Regardless of what you THINK the condition of the cables might be, they should be pulled out of their conduits or whatever kind of holders they may be in.

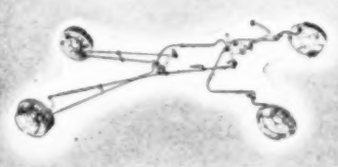
THE TRUCK FOR THE JOBS OF 1939

FORD V·8



HIGHLIGHTS OF THE 1939 FORD V-8 TRUCKS

NEW 95-HORSEPOWER V-TYPE EIGHT-CYLINDER ENGINE — A new 95-hp. V-8 engine is now available in addition to the improved 85 and 60 hp. V-8 engines.



NEW HYDRAULIC BRAKES—Four-wheel hydraulic service brakes, built to Ford standards of safety, are regular equipment on all 1939 Ford Trucks.

- New-type piston rings for improved oil economy.
- All-steel cabs, insulated, ventilated and with Safety Glass throughout.
- 34-in. frame width standard on all units.
- Improved Semi-Centrifugal Clutch.
- Worm-and-roller steering.
- Full torque-tube drive.
- Straddle-mounted driving pinion—ring gear thrust plate.
- Full-floating rear axle.
- Factory-installed two-speed rear axle available at extra cost.
- Ford Engine and Parts Exchange Plan. Saves time. Saves money. Avoids long, costly layovers.

THIS YEAR Ford gives economy a new meaning—*over a wider range of truck operations* than ever before.

To the time-proved 85-hp. and 60-hp. V-8 engines is added the *new 95-hp. V-8 engine* for greater power and speed. It is available in the Regular and C. O. E. Trucks. There are *new hydraulic service brakes* for quick, straight-line stops, with easy pedal pressure. Along with these new features are those *time-tested* truck features that have set the high Ford standard of performance and reliability.

For 1939 there are 42 body and chassis types, with a choice of equipment including factory-installed two-speed rear axle, optional gear ratios, transmissions, clutches.

Ten billion miles of payload performance have proved the Ford V-8 engine and the rugged, dependable construction of Ford Truck chassis equal to the toughest jobs.

If you want to know why there are more Ford Trucks on the road than any other make, examine the Ford Truck. See the 1939 Ford V-8 units. Match them feature for feature with any other truck of comparable size and price. *Know the difference before you spend another truck dollar.*

Arrange through your Ford dealer for a new Ford V-8 Truck with which to make an actual "on-the-job" test.

FORD MOTOR COMPANY, MAKERS OF FORD V-8 CARS AND TRUCKS, MERCURY, LINCOLN-ZEPHYR AND LINCOLN MOTOR CARS

FIGURE 7—Brittle insulation is usually caused by its being subjected to "ozone" for quite a considerable period of time. This destroys the rubber cable-covering.

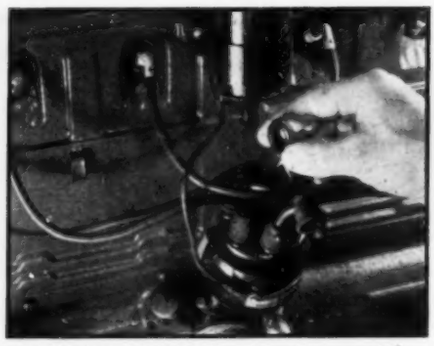


FIGURE 8—High-tension circuits cannot be practically checked with the volt-meter. They should therefore be examined carefully.

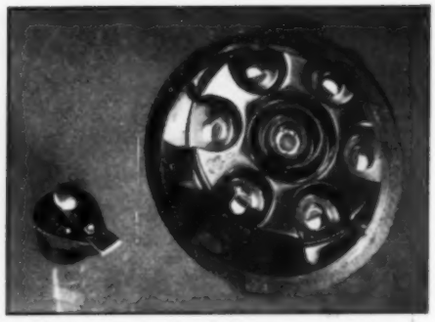


FIGURE 9—the distributor cap and rotor should also be examined very carefully, for cracks, arcing or burning, and new parts should be installed, when they are needed.

ignition-switch must be ON and the ignition-points CLOSED, in order that current will be *flowing*, when making this test. If the switch is closed but the points are *open*, no current will flow to the engine block, and you will get the *full* battery voltage reading (less the coil resistance) which is NOT what we want. We are looking for voltage-drop, so everything must be just so, in order to get the right reading.

This test (as shown in Figure 4) is made by placing one prod of the volt-meter on the primary connection of the distributor, and the other prod on the engine block. Make sure that you touch bright metal, and *not* paint or grease, which would show high resistance. A reading of more than two-tenths of a volt indicates high resistance somewhere between the primary terminal of the distributor and the engine block.

This resistance can be between the points themselves, or between the distributor housing and the engine block, so proper tracing must again be done, by shifting the prods, as in Figure 3. The joint between the distributor-plate and the distributor-housing should also be checked, as sometimes a high resistance exists between these parts, due to oil, grease, etc.

If, on the other hand, excessive voltage-drop is found at the cable connections, the separate parts should be cleaned and replaced tightly. If excessive voltage-drop is found *within* the parts or cables, these should, of course, be replaced.

The lead from the starter-switch terminal to the ignition-switch, the lead from the ignition-switch to the coil, and the small lead from the coil to the distributor are included among

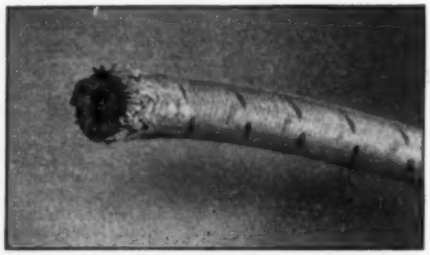


FIGURE 10—If the end of the copper core seems to have shrunk back into the insulation, it's likely that the cable is bad.

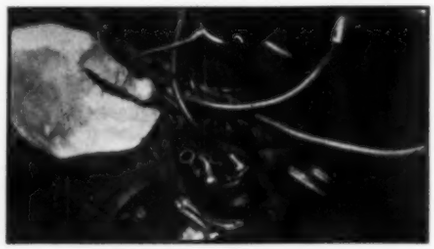


FIGURE 11—All cables should be removed from the distributor, and all of the sockets in the cap must be thoroughly cleaned out.

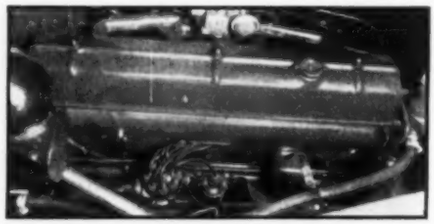


FIGURE 12—Where plugs and cables are covered by metal covers, as shown, more frequent inspection seems very desirable here.

FIGURE 13—Spark plugs, of course, should be cleaned and the points re-gapped. This is "old stuff", but it helps quite a bit.

the parts which may contain excessive resistance. These are seldom considered as a possible source of trouble, and should not be overlooked, as is *often* the case.

All of which brings us to the subject of cable. Primary cables are generally wires of the *minimum* permissible gauge, which are installed originally on new vehicles. However, in field service, these are sometimes replaced by wires with a copper core that is too small to carry the current required by the primary circuit, without excessive voltage-drop.

The surest way to avoid installing undersized wires by mistake (just as we told you last month in connection with starter-cables) is to be certain that the right *gauge* of wire is on hand and that it is marked plainly as to size. The *best* quality of primary cable is none too good for fleet use. It is *not* the purpose of this article to discuss the relative merits of the various makes of cable available.

The *last* two items to be checked in the primary circuit (believe it or don't) are the coil and the condenser. To be checked properly they both require accurate instruments. If you haven't got such instruments, we suggest that you take the coil and condenser to some shop which is properly equipped for this work.

Thus we see that the important factors to assure a satisfactory primary ignition circuit are: Adequate gauge primary leads, properly insulated; clean, tight connections; good ignition-switch; clean distributor-points, set properly; good coil; and a good condenser.

And now we come to the high-tension or secondary ignition cir-

(*Please turn to page* 52)

For 1939

White offers the Greatest Line of Trucks in its History

Featuring

AN ENTIRELY NEW TYPE OF ENGINE

WITH

"Streamlined Power"

AND NEW CABS WITH THE AMAZING

"Floating Ride"

THE FIRST REAL CONTRIBUTION TO DRIVER COMFORT
★ SINCE BALLOON TIRES ★

THE ONLY CAB THAT GIVES A "Floating Ride"

NEW • PATENTED • EXCLUSIVE

"Why didn't someone think of it before?" That's what truck owners and drivers invariably ask after their first glance at the interior of the new White Coupe Comfort Cab.

Here are bus-type tubular construction seats that would be a great advance in driver comfort *even without* the exclusive and patented "Air Chair" feature which White has built into them for a real "floating ride."

The diagram at the right shows how shock absorbing torque arms control the easy ride made possible by the coil spring mounting of the seats. You have never had a more comfortable ride sensation in a passenger car! To appreciate it you must try it.

INVESTIGATE!
Ask for a demonstration today.

Patented shock absorbers hold seats against coil spring and prevent driver from being thrown when spring is compressed in absorbing road shocks. Result is "floating" action and gradual return of spring to normal position.

1. Sturdy coil spring supports seats, thus they are cushioned against road shocks. Seats are suspended entirely independent of truck and coil spring action is controlled by torque arm *(pictured at the left above)*.
2. Both seats and backs are adjustable to many positions, assuring a comfortable ride for any driver.
3. Bus-type tubular construction makes seats strong and light in weight.

THE WHITE MOTOR COMPANY • CLEVELAND

BRANCHES AND DEALERS IN PRINCIPAL CITIES

A department, devoted to correspondence from readers of FLEET OWNER. Any questions having to do with automotive service will be answered in this department. All properly signed inquiries will be replied to by mail and such of them as are believed to be of possible interest to other readers will be published in these columns.

HOW MANY MEN IN THE SHOP?

● *Dear Mr. Fischer:* Do you have any figures as to the average number of mechanics used in fleets of various sizes? We are referring to shops that do all of their own work, including motor, transmission, rear-axle, brake, body and fender work; also painting.

Our fleet consists of approximately thirty 4-to-6-ton trucks and approximately forty ¾ and ½-ton units. How much shop personnel do you suggest?—*K. K., Youngstown, Ohio.*

Answer: The following list should serve only as a guide. When certain major over-hauling is done, additional help might be necessary. We would say that you should need at least 1 Superintendent, 1 Working Foreman, 3 Mechanics, 2 or 3 Helpers, washers or Greasers, and 1 Clerk, who could be a combination clerk and stockkeeper.

Of course, you might be able to get along with less than this in a fleet of 70 trucks, but we felt that we ought to be conservative and offer the maximum number of people needed, in our opinion, and let you do your own paring of the budget. If you are getting along with less than the above, we think you are doing very well, provided that your fleet operates efficiently (with very few road delays) and looks attractive.

You could dispense with one of the mechanics or helpers and substitute one painter, if you intend to do all of your own painting work, which, in a fleet of your size, we think is a splendid idea.

●

INSULATING AND HEATING

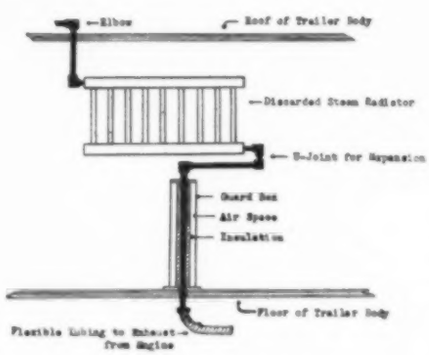
● *To the Editor:* We are interested in the general subject of maintaining temperature and humidity conditions in automobiles and trucks, especially the construction of truck bodies in which it is desired to maintain warmth in winter and a reduction of excessive heat in the summer.

Naturally, it is felt that some consideration has to be given to humidity; all of this, of course, under operating conditions involving short and long runs with frequent stops.

We are also seeking a list of devices available for the heating of automobile and truck bodies. Can you suggest anything?—*C. B., Brooklyn, N. Y.*

Answer: We believe your problem simmers down to truck body insulation, with particular respect to moisture control. We are sending under separate cover a booklet entitled: "Fundamentals of Good Insulation," containing 44 pages of non-technical information on the subject. (Other readers may obtain free copies by addressing the Editor). This book will probably answer any and all questions you may have in mind.

With reference to heaters for truck bodies, unfortunately, no manufacturers (to our knowledge) have seen fit to bring out products of this nature. What there is consists of the regular passenger-car type of hot-water heater. You might be able to get a large-sized heater of this type and mount it in an insulated body, but we have never seen it done.



The accompanying sketch is representative of a home-made exhaust-type heater which one fleet operator is using quite successfully. The illustration is self-explanatory and you can make one up at small cost. The fleet man who submitted this sketch reports that his fleet operates continuously, day and night, summer and winter, hauling butter, eggs, green goods, fresh vegetables, fruits, canned goods, fish, meats, etc. He reports that he has had no freezing losses over a period of years, since using heaters of this type.

●

SEEKS BETTER GAS CONTROL

● *Dear Mr. Fischer:* Is there a device on the market which fits into a gasoline pump or works electrically (away from a gas pump) that would denote on *permanent* records—paper or cardboard—the number of gallons of gasoline going into various trucks at various times of the day?

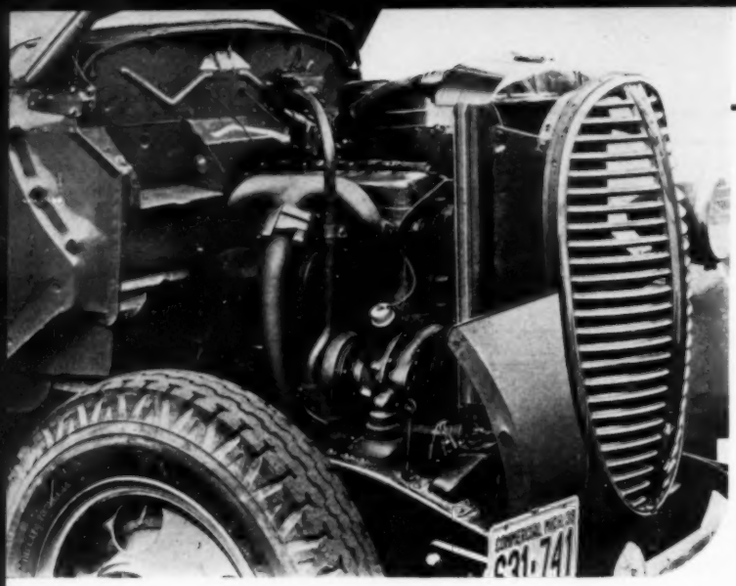
Such a device should operate in such a manner that each truck's consumption could be distinguished from another's. For example: The first truck in at night might take 10 gallons, which would be recorded on a card or roll. Truck Number 2 might take 9 gallons, which would be similarly recorded, but separately; and so on.

If we had such a device, we could check the drivers' figures and also could find out whether or not gasoline was taken for other than truck use.—*Anonymous, New Jersey.*

Answer: The nearest thing to what you outline is the printing pump which was illustrated and described on page 48 of our June issue. This is a gasoline pump which delivers a printed slip each time that gasoline is dispensed. The printing device goes back to zero after each pumping, so that individual records could easily be kept.

When desired, these gasoline slips can be filled out in advance by the shop superintendent or other official, showing the amount of fuel which each driver should obtain, and can be given to the driver as his authority to get the fuel, after which it will be imprinted with the amount he actually received. The slips can then be saved, for record purposes.

Should you (or other fleet operators) desire further details on this fuel system, we suggest that you write directly to Harry J. Slack, c/o S. F. Bowser & Co., Inc., Ft. Wayne, Ind., mentioning this editorial item, if you don't mind.



DIESEL for FORDS

Hercules Offers New Diesel Engine in "Package" for Replacement in All Ford Trucks from 1935 to 1939

"OPEN THE shipping case, and there you are!" In those few words, Hercules Motors Corporation, Canton, Ohio, describes its new "replacement engine"—a Diesel job to replace the gasoline V-8 engine in all Ford trucks from 1935 to 1939 inclusive.

Included in the standard unit package is a 4-cylinder Hercules Diesel, Model DOOC, complete with all parts needed to effect complete change-over, except battery and muffler. With each outfit goes a standard manual of installation. The makers state that no special tools, other than those regularly used in automotive work, are required. All you need, so they tell us, is a good mechanic, a helper, a kit of tools and a chain-hoist.

The Hercules Model DOOC Diesel engine which is used for the conversion kit, is a completely standardized replacement engine, of proved design. It is a compact, heavy-duty, 4-cylinder engine with bore and stroke of 4 x 4½ inches and a piston displacement of 226 cubic inches. It develops 70 horsepower at 2,600 r.p.m., and its maximum torque is 162 pounds-foot at 1,400 r.p.m. The compression ratio is 16 to 1.

While the operation of this Diesel engine is essentially different from the operation of a gasoline engine, special knowledge is not required to complete the conversion with entire success. The changes necessary are easy to make. Primarily it is a job of assembly—and the book of instructions which is furnished explains clearly each operation, step by step, with photographic illustrations furnishing a helpful check on each detail of installation.

The Hercules Diesel engine is arranged with a special flywheel housing to fit the Ford transmission and is fitted with a special type of front gear cover with supporting arms which duplicate the Ford V-8 front engine mounting.

After the complete Ford engine unit has been removed from the chassis, the Ford transmission and clutch assembly are attached to the Diesel engine flywheel housing and after the necessary wiring, control unit and similar installations have been made, according to directions furnished, the Diesel engine, with transmission and clutch assembly attached, can be placed in the chassis with very little more effort than is required in installing a standard Ford V-8 engine, it is claimed.

A complete wiring harness is furnished which has the same tracer threads in each wire to match the tracers in the present Ford harness.

The only additional parts needed are a standard Ford V-8 passenger-car muffler assembly and a 12-volt battery of the ampere rating and outside dimensions specified in the installation manual.

Hercules engineers state that absolutely no changes are needed on the Ford truck frame, body or any other part. The Hercules Diesel engine in this installation is started on the same button previously used for the gasoline engine.

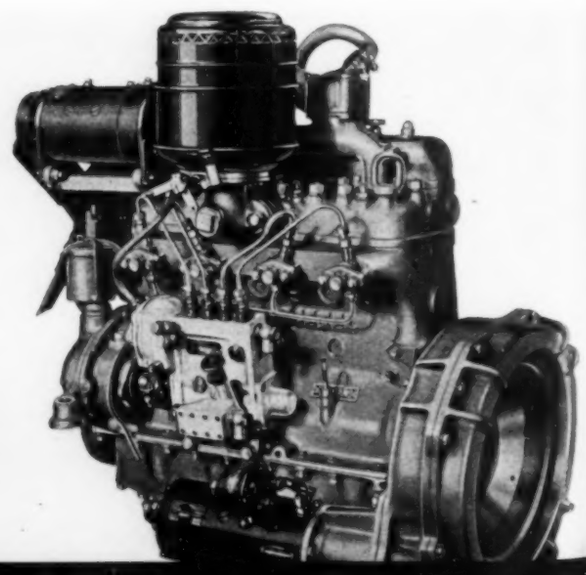
Gear-shifting remains unchanged. The speed is controlled by a foot "accelerator" and a slight pull on a conveniently-placed handle on the dash stops the engine when desired.

The Hercules Diesel engine (all of them, in fact) is of the solid-injection type, in which ignition is by compression only. It operates on the four-stroke-cycle principle. This type of engine utilizes the Hercules patented pre-combustion chamber, spherical in shape and having a tangential passage-way opening into the side of the cylinder.

As the piston reaches the end of its travel, it partially closes the passage-way, thereby forcing the air through the aperture of reduced area with what the engineers term "cyclonic velocity." This, it is declared, accelerates the all-important function of turbulence at the critical time of injection and combustion.

This Hercules Diesel engine utilizes a fuel-injection system of the one-plunger-for-each-cylinder type, which is believed to be of Timken design and manufacture. Fuel nozzles are of the pintle type and the

(*Please turn to page* 67)



NEW-TYPE TRUCK BATTERY *DOUBLES* ANY GUARANTEE

ever placed on conventional batteries

● Trucks stalled! Deliveries late! Lay-ups for repairs! In these days of swift competition there's no room for battery troubles that eat up profits.

That's why thrifty operators the country over, who are fed up with battery failures and replacement expenses are equipping their fleets with the new Goodrich Kathanode Truck Batteries.

And no wonder. When you equip your trucks with these Goodrich Kathanode Truck Batteries you're not only getting a battery that's built *specially to do a trucking job*—you're also getting a mileage *guarantee* that's actually *double* the guarantee that's placed behind conventional type batteries in truck service.

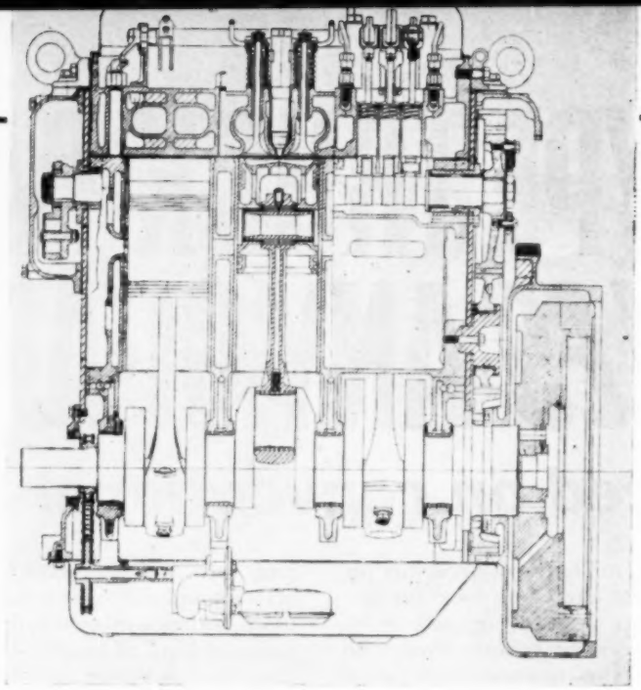
What's behind this amazing long-term Goodrich guarantee? Just this. A special patented cell construction—long used in the powerful batteries of airplanes, submarines and railroads—that actually multiplies the life of the battery—gives you, day-in and day-out, an entirely different kind of trouble-free performance. Fine, spun glass threads, woven into flexible, porous mats are placed *on both sides* of the positive plates. They keep the active power-producing material from shedding prematurely. Thus you get *super power* for brighter lights, quick, sure starts and greatly increased life.

Get complete details concerning the Goodrich Kathanode—the truck battery that's *guaranteed for more than twice the mileage of conventional type batteries.* See your Goodrich Dealer or Goodrich Silvertown Store. Or write Battery Sales Department, The B. F. Goodrich Company, Akron, Ohio.

HERE'S WHERE YOU SOLVE YOUR BATTERY PROBLEMS AND POCKET THE REPLACEMENT SAVINGS!
THERE'S A GOODRICH BATTERY FOR EVERY TRUCKING SERVICE
Goodrich
KATHANODE
THIS BATTERY IS BUILT FOR TRUCK SERVICE . . . IT IS NOT A PASSENGER CAR BATTERY ADAPTED FOR TRUCK USE!

Goodrich *KATHANODE* Truck Battery

BUILT TO DO A TRUCKING JOB!



DIESELS *in* *New* GMC TRUCKS

TWO DIESEL engines are available in six conventional and six cab-over engine trucks. . . . Gross weights range from 15,000 to 35,000 pounds. . . . Here are the details:

TWELVE new Diesel models—six conventional and six cab-over-engine models, especially designed for the medium and heavy-duty truck field—all powered with the new General Motors Diesel (3-cylinder and 4-cylinder) engines, are announced for 1939 by General Motors Truck and Coach Division, Pontiac, Mich.

Because of the inherent advantages of Diesel engines—their high sustained torque, their fuel economy, and their ability to burn cheaper fuels—General Motors engineers have been concerned for some time with the design of a Diesel engine suitable for trucks and without any of the shortcomings of the Diesel engine.

The result is a different principle of basic design, a *modern* two-cycle Diesel truck engine which has lighter weight, smaller size and smoother power, according to GMC engineers.

In this two-cycle engine every downward stroke of the piston is a power stroke; therefore the two-cycle type Diesel should have twice as many power strokes per revolution as the conventional four-cycle engine. Thus, the engineers declare, only half the number of cylinders are necessary in the GM Diesel for the same amount of work — a three-cylinder engine of the two-cycle type is said to be comparable to a six-cylinder engine of the conventional four-cycle design.

These modern GM two-cycle Diesels are approximately the same in size and weight as GMC gasoline engines designed for the same *overall* performance in any given truck operation.

Safety is assured with the GM modern two-cycle Diesels because there is no fuel hazard and carbon monoxide is said to be *never* present in Diesel exhaust. The GM Diesels likewise are clean. There is no black smoke in the exhaust, nor any objectionable odor, according to GM factory engineers.

This clean burning of fuel is due to certain GMC design features. A supercharged air intake maintains at all times a greater air volume in the cylinder than is necessary for complete combustion. In addition, air from the supercharger is used to expel the exhaust gases.

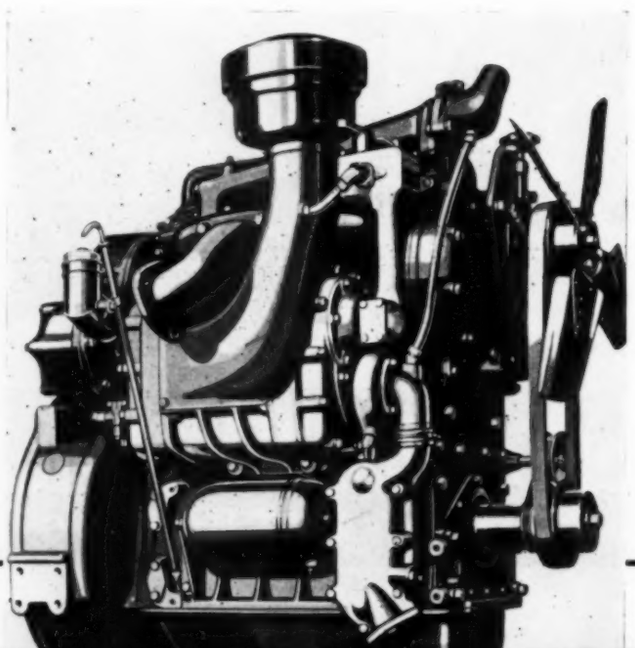
A direct injection system, with unit injectors built into each cylinder head, is another feature of the new 1939 GM Diesels. The unit injector combines the metering device, the pump, and the injection nozzle in one piece. This is the only truck Diesel engine built that combines these three functions directly at each cylinder. It eliminates any disadvantages of high-pressure fuel lines.

The six conventional models and six corresponding cab-over-engine models offered in the GMC Diesel field cover the gross vehicle range from 35,000 down to 15,000 pounds. This application of the Diesel to cab-over-engine models is another feature of GMC's Diesel announcement—GMC alone offering the combined advantages of cab-over-engine and Diesel throughout this capacity range.

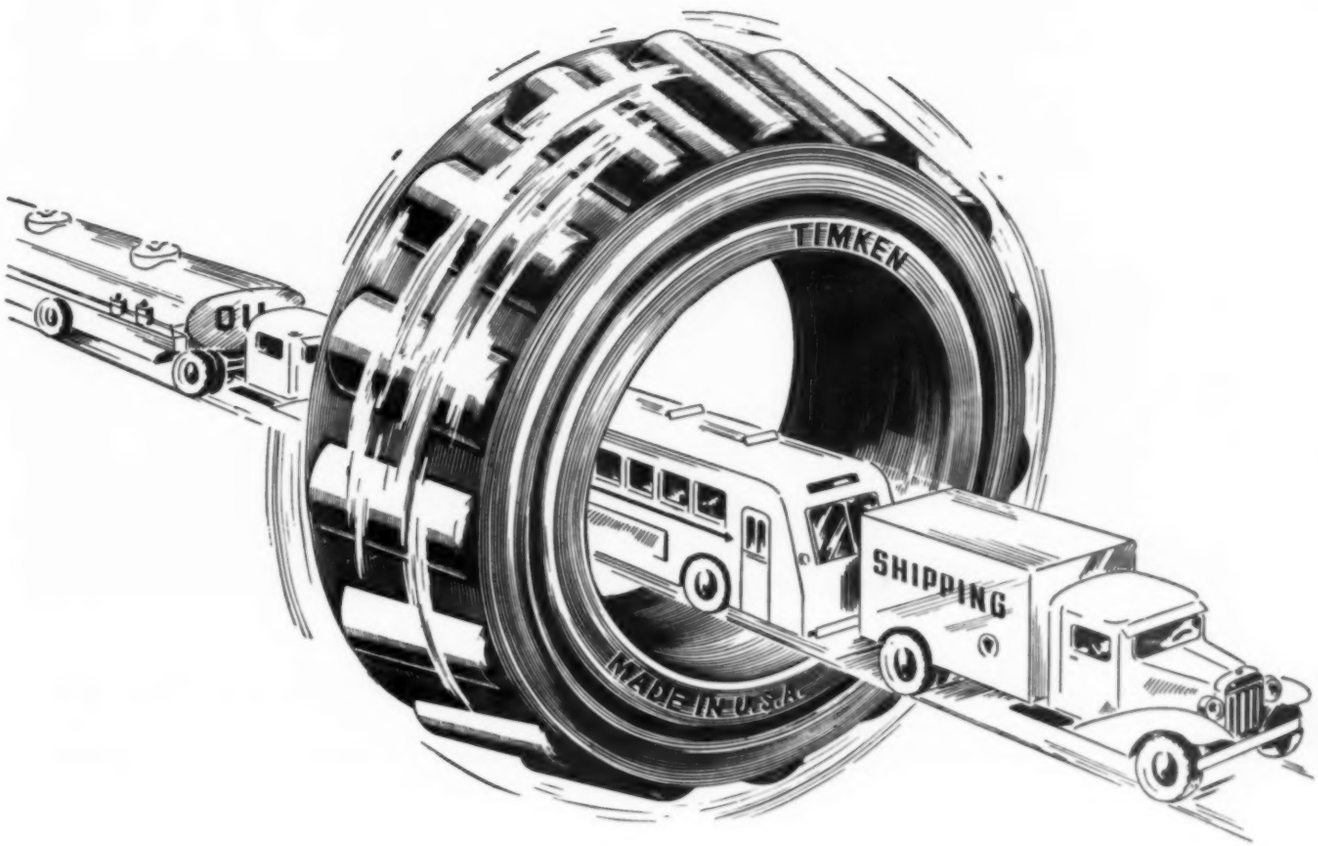
A high ratio of torque to displacement is found in the GM four-cylinder, modern two-cycle Diesel. With only 284 cubic inches displacement, this engine has a torque range of 308 to 350 foot-pounds. This engine is used in the GMC 700 and 850 series, designed especially for the tough, heavy-duty truck operations.

GM's two-cycle, three-cylinder Diesel, (illus-

(*Please turn to page* 67)



KEEP YOUR FLEET ON A PAYING BASIS WITH GENUINE TIMKEN BEARINGS



Where service is almost continuous as in the case of modern trucks and buses, occasional replacements are to be expected.

You cannot avoid bearing replacements, but you can make sure of getting the same long and dependable service *after* replacement as you received *before*, by using only *genuine* TIMKEN Bearings to replace TIMKEN Bearings in your vehicles.

More than 95% of all American trucks and buses use TIMKEN Bearings as original equipment. Their manufacturers have proved that TIMKEN Bearings, with many years of continuous engineering development and experience behind them plus the tremendous strength of TIMKEN Electric Furnace Alloy Steel, are equal to every demand of speed and load in front wheels, rear wheels, transmission, differential and steering gear. That is why, when a TIMKEN Bearing must be replaced nothing but another TIMKEN Bearing should be installed.

To be sure of getting *genuine* TIMKEN Bearings, look for the trade-mark "TIMKEN" stamped on the cup and cone.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
Service-sales Division

Manufacturers of TIMKEN Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; TIMKEN Alloy Steels and Carbon and Alloy Seamless Tubing; TIMKEN Rock Bits; and TIMKEN Fuel Injection Equipment.

TIMKEN
TAPERED ROLLER BEARINGS

Now—GM are ready to costs on your

Short haul or long haul—if your trucks keep on the go with heavy loads—this announcement is meant for you

NOBODY knows better than we do that Diesel engines have been built for years.

Of course you've heard about them. Maybe you've tried them.

But we're talking about a Diesel engine that power for power is no greater in size than a gasoline engine.

We're talking about a Diesel engine that showed a 60% fuel saving on the General Motors Proving Ground—where 4 gallons of fuel oil figured at 12¢ a gallon did the work of 7 gallons of 17¢ gasoline.*

There are several definite reasons why this GM Diesel engine can do a job on the trucks in your fleet such as no other Diesel engine has ever done before.

It starts with design and construction.

This engine has no high pressure feed lines—it uses the same successful unit injector and fuel pump tested by 10 million miles of railroad operation. No other Diesel for trucks has this advantage.

It meets the long-time objection to Diesel exhaust odors by using Uniflow scavenging—which assures cleaner and more complete combustion.

And it has the successful GM 2-cycle principle which doubles the work you get from every cylinder.

Beyond this, it has combined precision engineering with volume production

*Recalculate this at the prices you pay for fuel oil and gasoline.

Diesel engines cut operating present fleet

thereby insuring high quality at an economic cost.

How about installation?

That's a big question. We've been around enough to know there's more to installing a brand new type of engine in a truck than bolting it to the frames.

So we held back this announcement until we were ready to give our dealers a complete installation analysis program as to the best way of making our engine and your chassis work together.

Our whole operation is based on giving satisfactory results. At the present time, the most satisfactory application will be on fleets of ten trucks or over, which means, fleets large enough to have their own service and maintenance departments. Later on, we can handle smaller jobs—but we're not making any promises on this until we are ready to deliver.

If you have a fleet of 10 trucks or over, it will pay you to look into GM Diesels now. If you do not know the name of the GM Diesel dealer in your area, write to the address below and we'll put the right man in touch with you.

GM DIESEL POWER

GENERAL MOTORS

Sales Corporation

DIESEL ENGINE DIVISION • Cleveland, Ohio

"PAK-AGE-CAR" Improved for 1939

THE PAK-AGE-CAR for 1939 is a development of the former Stutz Pak-Age-Car, hundreds of which are now in use by business concerns in all parts of the country. The Pak-Age-Car Corporation recently took over the patents and sales rights for this vehicle. Production and factory offices are at Connersville, Indiana.

The *new* Pak-Age-Car, illustrated on this page, is rear-engine driven by the "Iron Horse" illustrated below. This is a complete unit-power-plant, which may easily be removed as a single unit; replacement thus can be made in a minimum of time and if extra units are carried in stock, very little "time out" will be entailed by the vehicle.

Two wheelbases are offered—Model 91 with 90-inch wheelbase; on Model 117 it is 116 inches. Treads on both models are the standard 56-inch, front and rear. Weight of Model 91 is 2,950 pounds, and of Model 117, 3,275 pounds. . . . Both have a rated capacity of 3,000 pounds. Turning radius of Model 91 (right or left) is 15 feet. The Model 117 has a turning radius of 20 feet.

The interior, also illustrated, is entirely unobstructed and free. On the Model 91 the driver has 20 cu. ft. load capacity in front of him and 125 cu. ft. to the rear. . . . On Model 117 he has 192.2 cu. ft. to the rear. Note the flat floor.

The rear-engine-drive of the Pak-Age-Car offers many advantages. Through this method of design it has been possible to make the floor of the truck flat and to increase the working convenience of the driver. Better visibility has resulted and the driver is able to stand at will. Rear-engine drive also has made possible a complete detachable power-plant, that can be removed for overhaul or inspection and replaced by a duplicate spare unit.

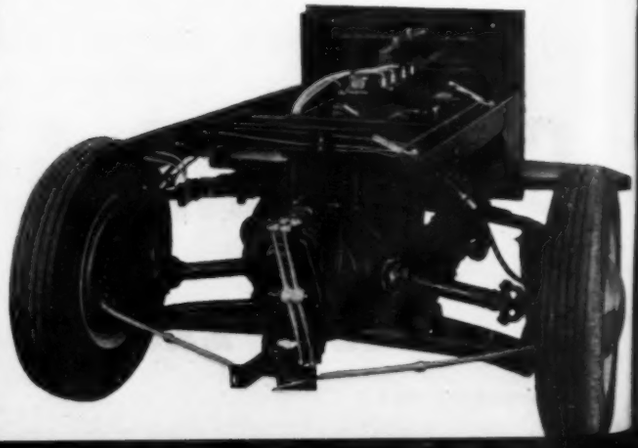
The Pak-Age-Car engine is an "L" head 4-cylinder Lycoming, 3-5/16" bore, stroke 3⅞". Compression ratio is 5.75, with cubic inch displacement of 133.58. A.M.A. h.p. rating is 17.55 with 32 brake h.p. developed at 2,400 r.p.m. Governed engine speed is 1,800 r.p.m. with a governed road-speed of 25 m.p.h. in low and 28 m.p.h. in high ratio.

The electric system is Auto-Lite with Stromberg updraft, velocity type governor SF-1 carburetor. Standard equipment includes bumpers; rear-view mirror; windshield-wiper; head, tail, stop, instrument panel and dome lights; starter; generator; rear doors; battery; ammeter; oil-pressure gauge; heat-indicator; gas gauge; air-cleaner; oil-filter; safety-glass; side door-locks, and door-opening device for both front doors.

The all-steel body, painted in prime, has insulated sides, top and back. The rear riser panel and rear deck are kept cool by a constant flow of cool air taken in the front and discharged in the rear.

Brakes are hydraulic; wheels are the pressed steel,

(*Please turn to page* 68)



Only CAVALON

HEAVY DUTY UPHOLSTERY MATERIAL OFFERS THESE *14* ADVANTAGES

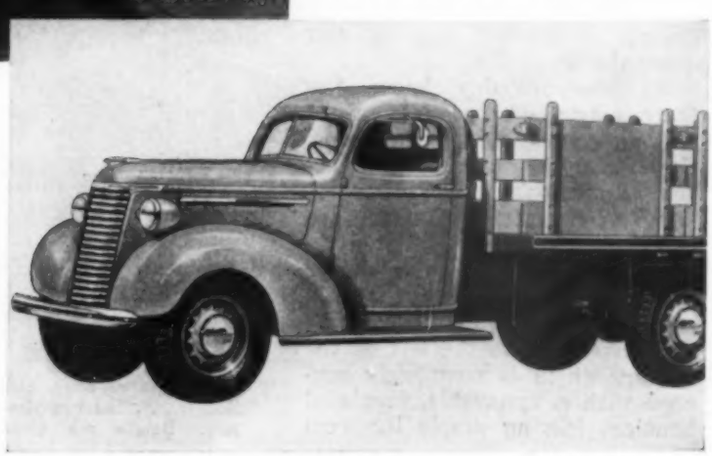
CHECK the advantages of CAVALON upholstery material against other fabrics. Compare costs. See for yourself how much *more* you get for your money when you buy this superior rubberized material.

CAVALON is unusually tough and durable. It has been tested in the laboratory—and on the road—and found to give long, economical service under severest treatment. And CAVALON is so easy to handle you are certain to get a handsome, tailor-made job of reupholstering in almost any shop.

It will pay you to look into CAVALON before buying new trucks —or before reupholstering your present fleet. We'll be glad to send samples and complete information.

1. Resistance to abrasive wear.
2. Resistance to cracking and peeling of the coating.
3. Resistance to cracking when the seat is constantly flexed.
4. Sufficient strength to prevent tearing and puncturing.
5. Good aging characteristics over a long period of time.
6. Unusual durability when exposed to the elements.
7. Freedom from exudation and tackiness when exposed to elevated temperatures.
8. Freedom from edge cracking and tension cracking along the beading and edges where material is sewed.
9. Sufficient pliability for good tailoring and application in the workshop.
10. Freedom from crocking and bleeding of color so as not to soil clothing.
11. Freedom from any bloom due to sulfur, waxes and oils to detract from appearance.
12. Attractive colors and grains consistent with good durability.
13. Economic cost.
14. Good "seating" properties.

● Most CHEVROLET trucks are upholstered with CAVALON heavy duty material. You'll also find CAVALON widely used on the equipment of other leading manufacturers of trucks and tractors—wherever durability is most essential.



DU PONT
REG. U.S. PAT. OFF.

Write for Samples and Complete Information

E. I. DU PONT DE NEMOURS & CO., INC.

RUBBER PRODUCTS SALES **FAIRFIELD, CONN.**

Larger Metro Bodies for Heavier Chasses; New Rear Door Also Announced

TWO YEARS ago, Metropolitan Body Company, Bridgeport, Conn., introduced its first "double-capacity" body conversion, for application to standard ½-ton commercial chasses. Since then, thousands of them have been sold and tested in actual door-to-door fleet operation, by laundries, dry cleaners, bakeries, florists, parcel-delivery companies and others whose job it is to deliver light, bulky loads in house-to-house service.

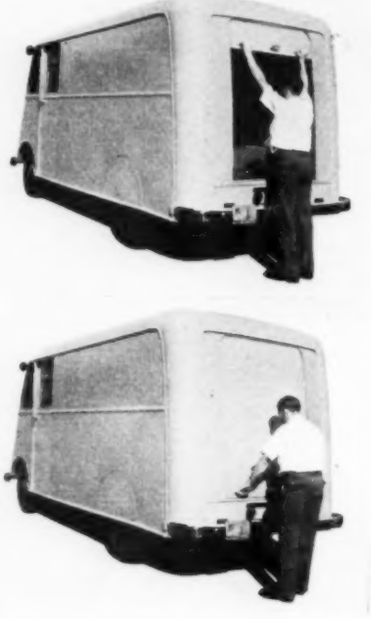
As a result of constant study of this peculiar transportation problem, Metro has recently extended the application of this principle, so that now you can get this type of body, and the necessary conversion work, for ¾-ton, 1-ton and 1½-ton chasses, as well. For 1939, Metro is offering 9-foot bodies for ½-ton, ¾-ton and 1-ton jobs, and a special 11-foot body for 1-ton and 1½-ton chasses of all popular makes of trucks.

The *new* body (11-footer) measures 11 feet behind the driver's seat, with a width of 68 inches and a height of 62 inches—these are inside (payload) dimensions. A small fleet of these bodies is illustrated above, mounted on D-15, 130-inch wheelbase International Harvester chasses. The overall length (bumper to bumper) of these jobs is 18 feet and the *payload* space measures 305 cubic feet. This type of body, of course, can be installed on *any* make of chassis of similar capacity and dimensions.

As you probably know, the Metro extra load-space is obtained without any change in wheelbase, chassis length, rear-axle or drive-shaft, and *without* extra overhang. Driver and controls are moved forward by a patented re-arrangement, giving the driver better vision. This is not strictly a cab-over-engine arrangement, as the driver sits to the left of the engine, which is completely covered with a removable, insulated housing, leaving ample leg-room for getting in and out at either side of the truck.

Metropolitan Body Company also announces, at this time, an entirely different type of rear door, which is illustrated on this page. The new door is known as the *"Metro Magic Door"* and is made of flexible steel. It can be raised and lowered like a window-sash or shade, as it travels in a groove or track. When raised, it curves in under the truck roof.

The makers state that this new door will stay put in any position. Thus it is possible, on stormy days for instance, to open it only partly—just enough to remove a parcel or other delivery piece. The new door, of course, eliminates the age-old problem of doors that extend beyond the sides of the truck when opened, and which often prevented backing close enough to the loading platform. It also eliminates the hazard of doors flying open, and also the wear-and-tear (and often breakage) of hinges on windy days, and on days when drivers are not too careful.

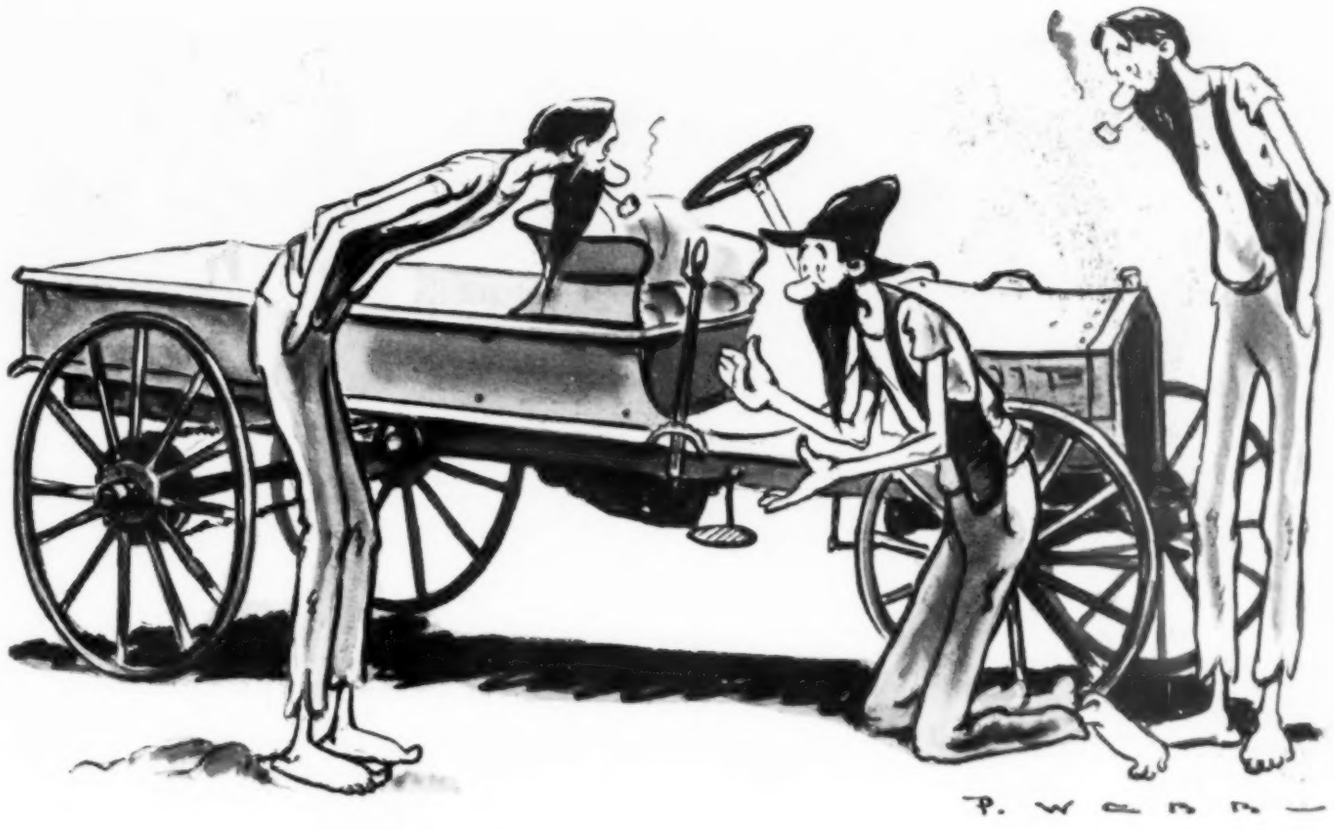


NEW type of door, called "Metro Magic Door". . . . The two views are self-explanatory. Details are given in this article.

We understand that patent has been applied for on this new door. Its inventor, Philip Carlson, states that the *"Metro Magic Door"* will be offered as optional equipment on all Metro Double-Capacity Bodies—for light bulky loads—on ½-ton, ¾-ton, 1-ton and 1½-ton chasses of leading truck manufacturers.

Some interesting data has been revealed, in connection with the study made by Metropolitan Body Company on the subject of retail-delivery bodies. In nearly every fleet checked, it was learned that the problem of carrying extra loads on "peak" days was a serious one, and that because of the "bulk" of the load, the weight capacity rating of the chassis was not even approached, when conventional panel bodies were used. It was also found that drivers' earning capacities were limited, too, which in turn reduced the

(*Please turn to page* 69)



"S'pose she'd run on coal oil, Luke?"

SURE SHE WILL, Luke, if she can run at all. Fact is, most any automotive vehicle will run on most any petroleum fuel, if she'll start and if you don't care *how* she runs.

What's that? *You* want performance, economy, fast schedules from a modern high compression engine? That's different. Then *good gasoline* is the answer.

How do you know good gasoline? Ask about volatility—at what temperature vaporization begins, at what temperature the gasoline is completely vaporized. Ask about vapor pressure—how many pounds per square inch. Unless the vapor pressure fits your operating conditions, you may get vapor lock and a stalled motor.

Ask about gum content and harmful sulphur content and make sure they're low. Ask about anti-knock value, and be sure that's high.

When you buy gasoline with "Ethyl" or regular gasoline containing tetraethyl lead, you're sure you are getting high anti-knock value. These fuels measure up on the other points and give you the power and economy the manufacturer of your vehicle intended you to receive.

If you have further questions, write or get in touch with the Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturers of anti-knock fluids used by oil companies to improve gasolines.

5 RULES FOR GOOD GASOLINE

VOLATILITY should be balanced, for full power and best economy.

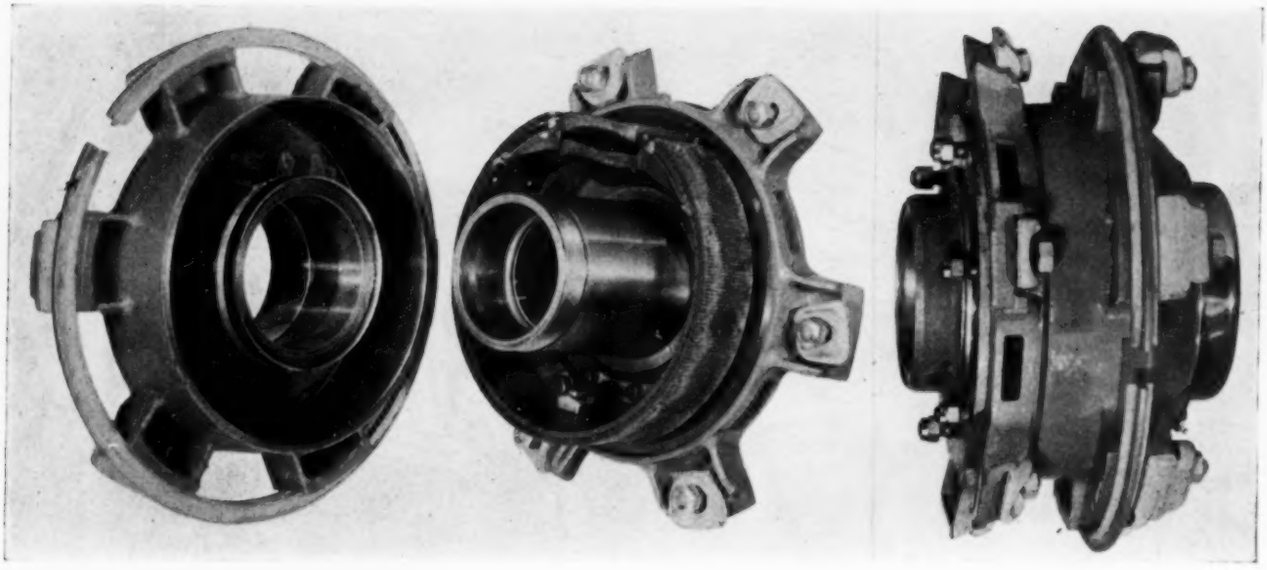
VAPOR PRESSURE should be adjusted to meet operating conditions.

EXCESSIVE AMOUNTS of sulphur may be harmful in cold climates.

GUM CONTENT should not exceed ¼ of a gram (4 small drops) per gallon.

ANTI-KNOCK VALUE should be high, of at least 68 octane number.

THE BETTER THE GASOLINE THE BETTER THE PERFORMANCE

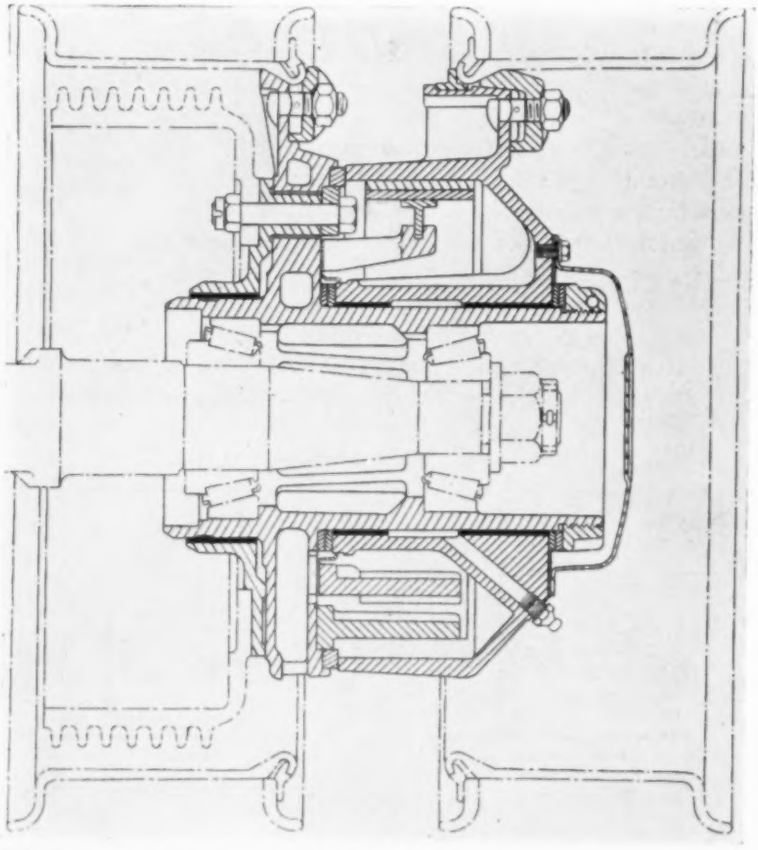


« Differential-Dual-Wheels Announced »

DIFFERENTIAL-Dual-Wheels, a product of the Detroit Compensating Axle Corporation, of New York and Detroit, are being publicly exhibited for the first time, this month, at the National Motor Truck Show, New York City. These are for use on trailers and for the dead axles of third-axle trucks and trailers.

The two assemblies at the left, above, show the two wheels dis-assembled. Note that the outer wheel hub telescopes over the hub of the inner wheel, forming two separate wheels, each rotating independently of the other. The dual braking mechanism is visible at the top of the inner wheel (center assembly). When the brakes are applied, the braking finger expands the clutch-band against the clutch-drum in the outer wheel, causing simultaneous braking action on both wheels.

The extreme right-hand assembly, above, shows the outer and inner wheels assembled, ready for installation and for the attaching of drum, rims and tires. The line-drawing at the bottom of this page shows the construction in detail.



THIS DRAWING shows Differential-Dual-Wheels, completely assembled, ready for installation and for the attaching of drum, rims and tires. . . . The photograph (extreme upper right) shows the same view, in photographic perspective.—Ed.

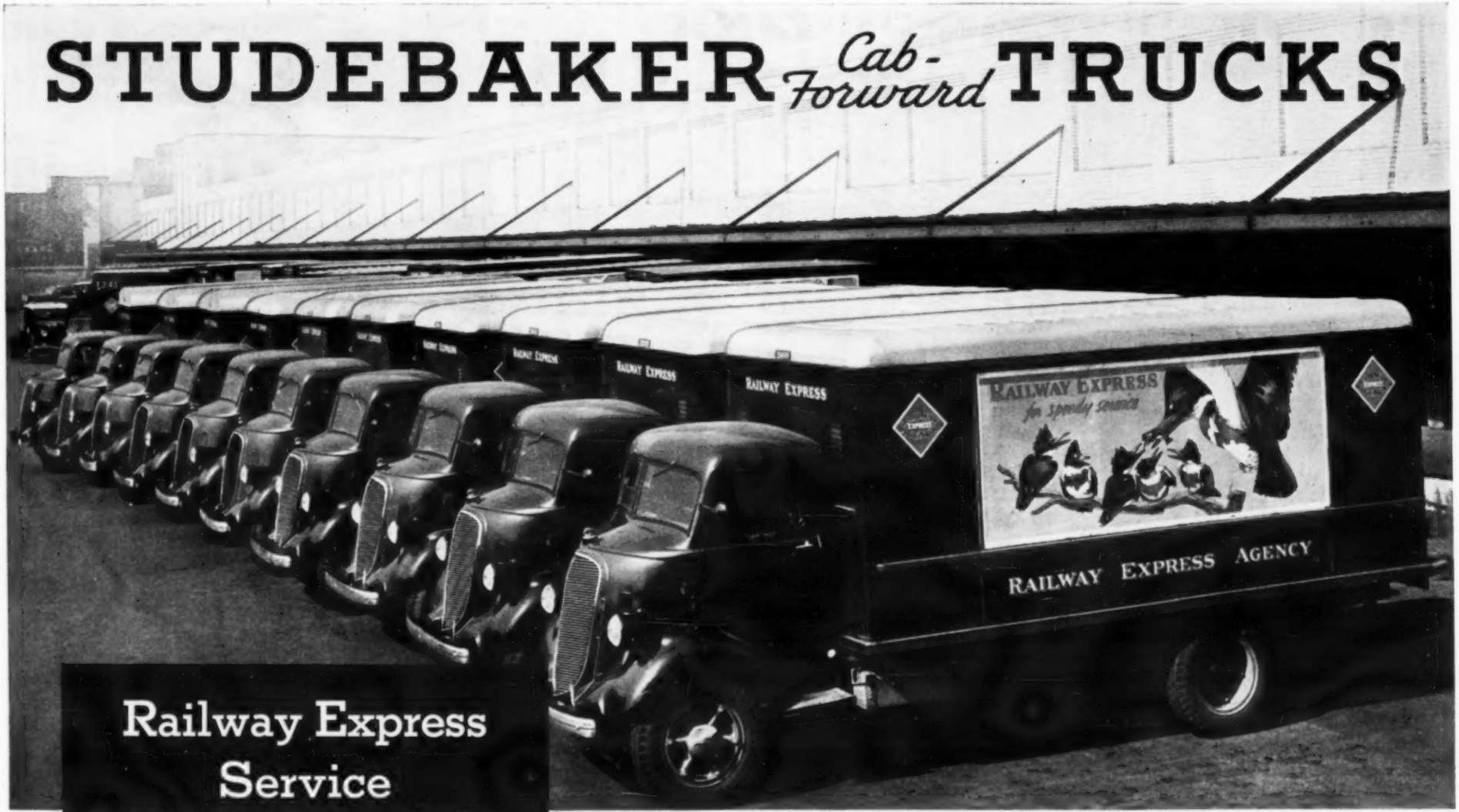
Differential-Dual-Wheels' chief feature lies in the fact that they help to achieve the maximum efficiency of tires—and also fuel. The main reason for this is the elimination of tire-drag, because Differential-Dual-Wheels permit each tire of a dual-pair (on trailer and third-axles) to revolve independently of the other.

Instead of locking together the two dual wheels, as is common practice on trailer axles, the use of this new development frees the tires, by mounting them on *separate* wheels, one within the other, by means of the telescoping hubs previously mentioned. The clutch member, within the wheels, operated by brake pressure, locks the two wheels together *only* when the brakes are applied, thus transmitting the braking force equally to the two tires.

The principle of differential action used in this device is not new. As early as 1925, this same company conducted experiments along this line, but it was not until this year that independently rotating wheels became commercially available to the mil-

(*Please turn to page* 69)

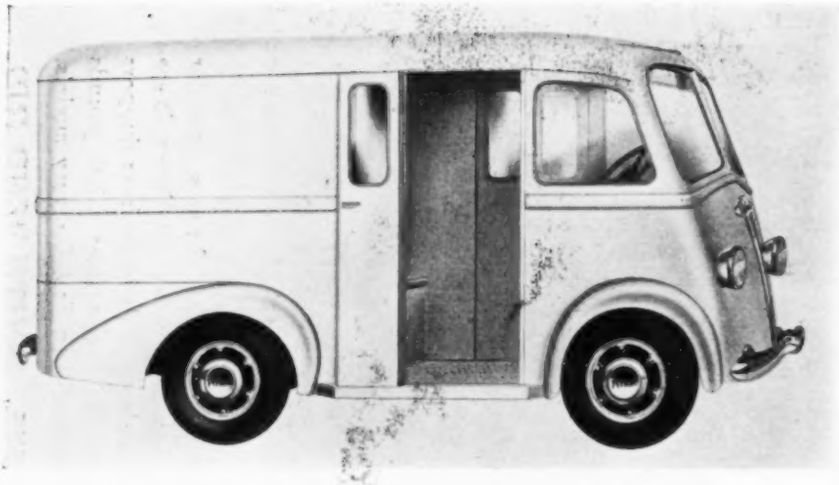
STUDEBAKER *Cab-Forward* TRUCKS



Railway Express Service Shows the Stuff a Truck is made of!

TRANSPORTATION costs are the first concern of Railway Express Agency, operator of one of the world's largest truck fleets. These ten new Studebaker Cab-Forwards are part of the fleet of 286 Studebaker Cab-Forward trucks serving Railway Express shippers with real economy and dependability. Studebaker trucks range from 1000 pounds to 20,000 pounds gross capacity—Cab-Forward, Standard and Fast Delivery models.

THE STUDEBAKER CORPORATION TRUCK DIVISION **SOUTH BEND, IND.**



"White Horse" Delivery Unit *Has* Air-Cooled Engine

•

NEW JOB features "detachable" power-plant, for quick servicing. . . . Other White developments include improved series of regular White engines, and a new type of patented cab seats, featuring coil-spring mountings.

THE WHITE Motor Company, Cleveland, Ohio, announces a new retail-delivery, door-to-door unit, called *"The White Horse"* and illustrated above. It is designed especially for the retail delivery of milk, laundry, bread and cake, flowers, dry-cleaning, etc.

The power-unit (illustrated below) consists of engine, clutch, transmission and rear axle, designed in one integral unit and mounted at the *rear*, carrying coil-springs for the rear suspension of the chassis and body. The latter are somewhat similar in general design to those of the so-called "knee-action" in passenger-cars.

Of unusual interest, undoubtedly, is the engine, which is a four-cylinder, double-opposed, *air-cooled* job, based on the design of a very successful airplane engine, it is claimed. This engine develops 45 h.p. at 2,500 r.p.m. . . . The bore and stroke are 3⅝ x 3⅝ inches (a square engine) giving 150 cubic inches piston displacement. It is interesting to note that this type engine recently established an air-endurance record of 103 hours.

A 10-inch vacuum-power-operated clutch is used, in conjunction with a three-speed transmission. Rear-axle is a full-floating job, with a one-piece steel housing and a numerical ratio of 6.5 to 1. The rear-axle, transmission and engine, together with the spring suspension, can be quickly removed *as a unit*, thus simplifying repairs and making it possible to have extra "White Horses" on hand for quick replacement, so that the tie-up time of the vehicle will be as short as possible when repairs are necessary to the power-unit.

The body of this new retail delivery unit is of welded design, having air-cell insulation. An integral supporting frame is a feature of the construction. Two wheelbases are offered—93 inches and 110 inches. The turning radius of the unit is 15 feet, and the total weight of the vehicle, ready for the road, is 3,100 pounds.

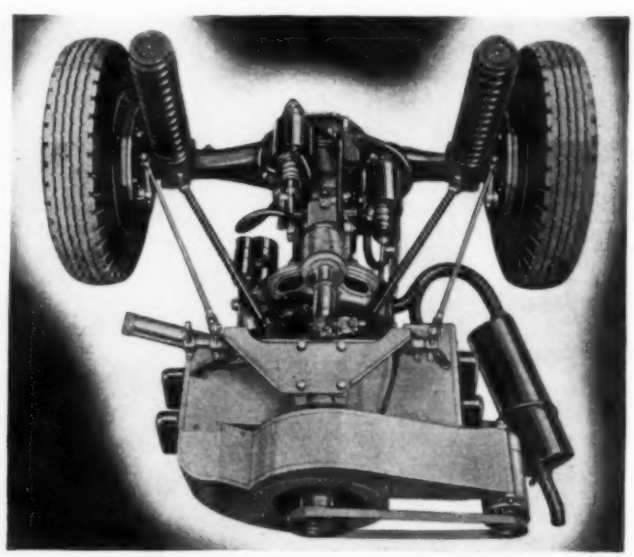
Automatic power and speed controls are employed and Lockheed hydraulic brakes of the same size front and rear give what is claimed to be unusually large area for this type of vehicle. The front springs are semi-elliptic and as previously mentioned, the rear springing is carried out by coil-springs with rubber-bushed stabilizer arms. Steering is of the cam-and-lever type and 7.00-16 tires, single front and rear, are standard equipment. Optional tire size is 7.50-16.

The vehicle is designed to run at 33 M.P.H. but higher speeds are available by change of rear axle ratio for special service. The gasoline tank capacity is 13 gallons and it is located in the rear. All normal servicing of the engine can be quickly carried out from one point.

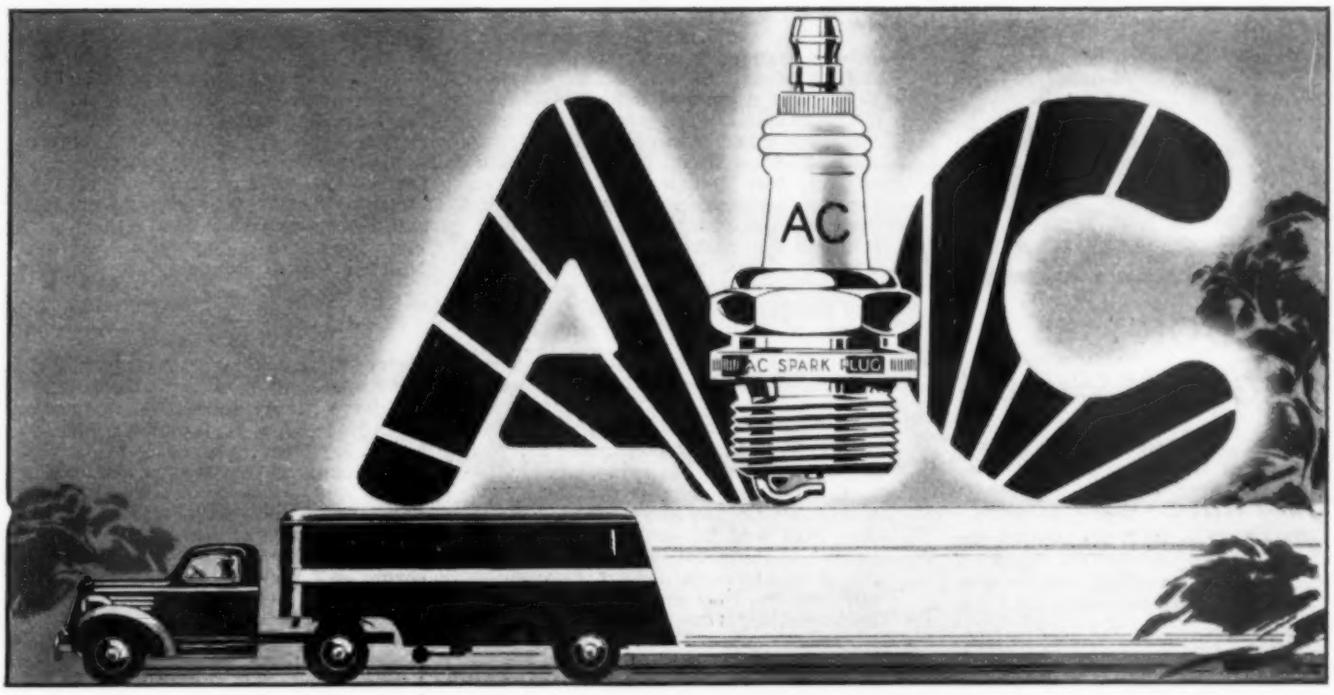
The White Motor Company at this time has a number of other interesting announcements to make in connection with their product, all of which are part of their 1939 program.

During the last year a new series of engines has been inaugurated and tested. Many hundreds of them are now in actual operation and the present series of engines is based on this extensive operating back-

(*Please turn to page* 62)



HERE is the new air-cooled engine and complete power-unit used in White's new WHITE HORSE. . . . When repairs are needed, spare units (complete as shown) can be slipped in, in short order.



FEWER SCHEDULE BREAKS

WITH THE *Right* PLUG TYPE AND HEAT RANGE

Users of AC Spark Plugs get more reliability—consistently—because the AC line is so complete and so exactly engineered that *every engine and operating requirement can be fully met.*

THE RIGHT TYPE—There isn't an engine built for which there isn't an AC type that has been selected not only by AC but also by the engine manufacturer. Such selection assures spark plug buyers that the specified AC type will give best satisfaction and reliability under all but abnormal operating conditions.

THE RIGHT HEAT RANGE—For those rare cases in which engine operating conditions depart from normal, the AC line offers an additional assurance of plug reliability. If preignition, rapid electrode wear, lower insulator breakage, or blow-by are encountered, AC's unique Heat Range permits selection of the "cooler" plug which will eliminate those difficulties. Similarly, if chronic sooting is experienced, this same Heat Range permits selection of the "hotter" plug which is needed.

Manifestly, the spark plugs which deliver maximum reliability are the plugs which hold schedule interruptions to the minimum. *And that, according to thousands of truck and coach operators, is exactly what AC Quality Spark Plugs do!*

Check your plug equipment
WITH THE FREE
AC Specification and Heat Range Charts

Ask your AC supplier for Form A-681. If he cannot furnish it, write our Service Department. No obligation, and no charge.

Use AC Spark Plugs for BETTER Engine Performance

AC SPARK PLUG DIVISION • *General Motors Corporation*
FLINT, MICHIGAN

DON'T BE HIGH-PRESSURED!

SOME magazines urge you to clip coupons, the object being to get "inquiries" or "leads." . . . In this respect FLEET OWNER is different!

SELECTED on its OWN MERITS, the literature listed on this page is offered, as an EDITORIAL service, without cost or obligation.

THE post-card is for your convenience. No stamp required.—H.C.F.

444. LIGHTING CATALOG. . . . Here is "something new" in catalogs—one that presents each item with full details and pertinent information, in an easy-to-read and easy-to-understand manner. . . . It contains a "gold mine" of important lighting-requirement data for every user of safety equipment, as well as a copyrighted series of charts on I.C.C. approvals, tests, etc. Number 444 brings a free copy, promptly, by one of Mr. Farley's able assistants—the mailman. . . . The post-card is for your convenience; we gladly pay the postage at this end.

•

445. BRUSH CATALOG. . . . It's *not* the Fuller Brush Man this time. . . . It's an extensive, fully illustrated catalog on *all* types of industrial brushes that you might be able to use around a garage, shop, plant, factory or warehouse. . . . The 72 pages are chock-full of interesting brush data that ought to make interesting reading during the long, cold nights of winter. . . . Number 445 on our post-card brings the free catalog by *mail*—and you are not obligated to buy a thing!

•

446. BEARING LUBRICATION. . . . Data on lubrication is *always* of interest. . . . This one is a well-illustrated, 44-page booklet entitled *"Ball and Roller Bearing Lubrication."* . . . As you may have guessed, it tells everything you might want to know on the subject of lubricating all types of anti-friction bearings, whether used in automotive, industrial, marine, railway and other applications. . . . If you think that ball and roller bearing lubrication is not so important, because "nothing rolls like a ball," etc., etc., you are due for a cruel awakening when you read this booklet. . . . Free, on request, by indicating Number 446 on our post-card attached.

447. NEW CABLE SAMPLE. . . . No doubt you have read Sterling Cable's announcement on pages 24 and 25 of our September issue. . . . They have developed a new 7-strand, stainless-steel, high-tension ignition cable, for which many advantages are claimed. . . . Their desire is to send *all* good fleet operators a free sample, for test purposes. . . . There's no obligation involved, because this offer is a *routine* part of the development work. . . . For your free sample, indicate Number 447 on our post-card, and we'll be glad to pass the word along to Sterling, who makes this gracious offer. . . . We'll ask them to send it by *mail*.

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448. TIRE-CHAIN DATA. . . . Do you know how to apply tire-chains so that all cross-chains will get *equal* wear? . . . Do you know that the *right way* will add 25 to 50 per cent to your tire-chain mileage next winter? . . . A free tire-chain chart is offered to our readers, that gives this and other pertinent information on tire-chains. . . . Just place Number 448 on our post-card, and one of Uncle Sam's uniformed messengers (the mail man) will deliver one to your desk or shop, promptly.

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449. HEAT-VENT FOLIO. . . . Heat vents are necessary in many places—under the hood, at home, in the shop; and now they have them in your truck-tires. . . . Claims are made for a new truck-tire that because of its patented heat-vents, heat failures on tires will be reduced 83 per cent.—and that you will get greater truck-tire mileage. (It ought to work on buses, too). . . . A new "folio" is offered, free to fleet operators, to let you in on the complete story. . . . Indicate Number 449 on our post-card and a copy will be *mailed* to you at once, so that you can read, consider and make your own decision.

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450. SAFETY LIGHTING MANUAL. . . . Our recent survey on headlights, lamps, etc., resulted in our attention being called to the new *G-E Safety Lighting Service Manual*. . . . All of those puzzling headlight and marker-light problems are answered in it. . . . It tells how to best remove headlight doors and lenses from late models; how to properly adjust headlights without the use of expensive equipment; how to service stop-and-tail lights on modern cars, having fancy lamps, brackets, etc.; how to make your own "screen" for testing headlights; and numerous other interesting data. . . . This is a *real* manual, offered by a *real* company, who promises to *mail* it to you if you just say the word. . . . In this case, the "word" simply consists of placing Number 450 on our post-card attached. . . . We do the rest.

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451. DEAD-WEIGHT OFF THE PAYROLL. . . . There are two dandy ways to reduce your dead-loads. . . . Aluminum Bodies is one way; the use of high-tensile steels for body construction is another way. . . . To this end, we offer a new folder, entitled *"Dead-weight is Off the Payroll,"* which gives some practical data on the use of high-tensile steel for such applications as truck bodies, barges, bridges, implements, etc., etc. . . . Data and tables are also included (not too technical) showing chemical compositions, physical properties, fabrication, welding, forging, cutting, punching, reaming, milling, drilling and riveting of the new steels. . . . For your free copy just mention Number 451 on our post-card.

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452. BRAKE SERVICE ARTICLES. . . . Of course, with FLEET OWNER, you have plenty to read each month. . . . Here is a series of articles on brake servicing, prepared by one of the leading authorities on brakes in the automotive field. . . . We shall *not* have room to run them in FLEET OWNER, so are offering them in this department. . . . The title of this series is *"Modern Brakes."* . . . The first article contains a discussion of braking problems in terms of rate of travel and heat generated, while the second one describes types of modern brake lining and the third discusses brake-drums. . . . Future articles will be released shortly. . . . We suggest that you have your name placed on the mailing list to get these articles; the first three will be sent promptly and the others, as issued. . . . Of course, there's no obligation, except that they hope you will *read* them. . . . Number 452 on our post-card places you in line for this interesting reading matter, with the compliments of the author.

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453. YARDAGE TOTALIZER. . . . Those of you who are engaged in moving earth, sand, stone, cinders, garbage and other stuff that is generally measured by the cubic yard, will find ready use for the *"Yardage Totalizer"*—a calculating gadget offered free by one of the equipment makers. . . . One side of it contains a truck tally sheet, on which a daily record of the trips made by each truck can be kept. . . . At the end of the day you simply wipe the slate clean with a damp cloth (or some spit on your finger) and you are ready for the next day's totaling. . . . Another feature of it is a circular calculator, on which you can easily add up the cubic yardage carried by the *entire* fleet for the day. . . . This little novelty device measures 5 x 5 inches and will be sent *free* to anyone using dump trucks. . . . If you want one, just place Number 453 on our post-card; there's no obligation, save that they hope you will *use* it when you get it.

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454. CIGARETTE-PAPER TEST. . . . In conjunction with an interesting explanation of the advantages of using colloidal-graphited oils, Acheson has devised a very convincing "cigarette-paper test" which demonstrates certain qualities claimed for this type of lubricant. . . . Number 454 on our card brings the complete story on colloidal-graphite and also a sample of the "test." In addition, the latest technical bulletins on colloidal-graphite will be sent to you.

QUESTION OF-THE-MONTH

Get *the* "Low-Down" *on* Inner Tubes *and* Tire Valves

(Here's How You Can Get the Complete Picture on this Controversial Subject:)

QUITE A CONTROVERSY seems to be raging on the subject of Tire Valves. . . . Last month we discussed Retreading and the month before that we covered Tire Purchases. . . . So let's finish it up with this one on Tubes and Tire Valves. . . . And let's also find out what the *fleet operator* has to say about it.

The questionnaire is the *first* step. In return for a few minutes of your time in filling it out and sending it back to us, you will receive *your own* private, personal copy of the complete picture. We do all of the *hard work*, digesting and totaling the replies—and *you* get the *benefit!*

Names of fleets or executives are *never* mentioned or disclosed in any way. So don't hesitate to participate. . . . Please note that where we mention "Tire Valves" we mean the *whole* valve, stem and base. . . . Where we say "Valve Inside" we mean *only* the little springy gadget that you screw out. . . . You'll be careful, won't you? . . . Thanks a lot.—ED.

(Please tear out and mail to The Editor, Fleet Owner, 90 West St., New York, N. Y.)

Question No. 92—Inner Tubes, Tire Valves, Etc.

Where do you have your flat-tires (punctures) fixed? *Please check:* ☐ In our own shop; ☐ Outside shop.
If you repair your own tubes, what type of tube repair is made? *Please check:* ☐ Hot-Patch; ☐ Cold-Patch.
If hot-patches are used, what type of vulcanizer is used? ☐ Electric; ☐ Gas-Steam; ☐ Fuel-in-Patch (*Shaler*).
Which method is best for tube repairs? *Please check:* ☐ Hot; ☐ Cold.
About how many punctures do you average per month? (Rough guess will do) . . . . . *Punctures per month.*
Do you have trouble with bent or broken valve-stems, caused by flat tires? ☐ Little; ☐ Much; ☐ None.
When necessary, do you replace defective tire-valves in your own shop? . . . . . In outside shop? . . . . .
What make of tire-valve do you prefer? *Please check one:* ☐ Schrader; ☐ Dill; ☐ Jenkins; Others? . . . . .
Do you specify the make of tire-valve wanted, when ordering for replacement? ☐ Yes; ☐ No; ☐ Sometimes.
What is your source of supply on tire-valves? ☐ Automotive Jobber; ☐ Tire Mfr.; ☐ Tire Jobber; ☐ Tire Dealer.
About how many replacement tire-valves (*not valve-insides*) do you use per year? (*Rough guess*) . . . . . *per year.*
What is your favorite brand of inner-tube? . . . . . *Confidential.*
About how many valve-insides do you replace in your fleet per year? (*Rough guess*) . . . . . *per year.*
Which make of valve-inside do you prefer? *Please check one:* ☐ Schrader; ☐ Dill; Others? . . . . .
What is your approximate cost (*labor and material*) of a tube-repair, including mounting and dismounting? . . . . .
What is the approximate life of an inner tube in your service? . . . . . *Years* (*Please answer in "years"*).
Do you use puncture-proof tubes? . . . . . If so, how do you find them? ☐ Good; ☐ Bad; ☐ Fair.
If you are using (*or have used*) puncture-proof tubes, are they worth their cost? ☐ Yes; ☐ No.
How are MOST of your vehicles operated? ☐ Slow-speed, city work; ☐ High-speed, inter-city work.
REMARKS—(Let's hear from you) . . . . . .
. . . . . .
. . . . . .
How many vehicles in your fleet? (Please indicate below)
Trucks . . . . . Tractors . . . . . Trailers . . . . . Pass. Cars . . . . . Buses . . . . . Miscellaneous . . . . .

Note: If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.

Swap your transportation experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm . . . . . .
Address . . . . . .
City and State . . . . . .
Your Name . . . . . *Position* . . . . . .

cuit, which includes the coil, the high-tension cable from the coil to distributor-cap, the distributor-cap itself, the rotor, spark plug cables and the spark plugs themselves.

The most practical method of checking this circuit is to inspect the parts and connections carefully, as shown in Figure 8, as the high-voltage and high-frequency current make it impractical to check this circuit with the volt-meter.

First we should examine the insulation and terminals of the high-tension ignition cable from the coil to the distributor. If the insulation looks hard or brittle, as shown in Figure 5, all of the high-tension cables should be replaced, for best motor performance.

Or, if the end of the copper core appears to have shrunk back into the insulation and is not making good contact with the terminal, as shown in Figure 10, it is quite likely that the *entire* cable has deteriorated to the point where it should be replaced.

Next we remove all of the spark plug cables from the distributor-cap sockets, as shown in Figure 11, and examine both the terminal and sockets. Each socket in the distributor cap should be cleaned thoroughly, since the resistance of a corroded distributor socket may definitely affect the performance of the engine. And, when the high-tension cables are re-inserted into the distributor-cap, they should be inserted firmly, so that they touch the *bottom* of each socket.

And, regardless of the condition of the *visible* portion of the high-tension cables, they should be pulled out of whatever manifolds or conduits they are in, as shown in Figure 6. The hidden portion should then be examined for possible broken or hard insulation, and if bad, the cable should be replaced, if good performance is desired.

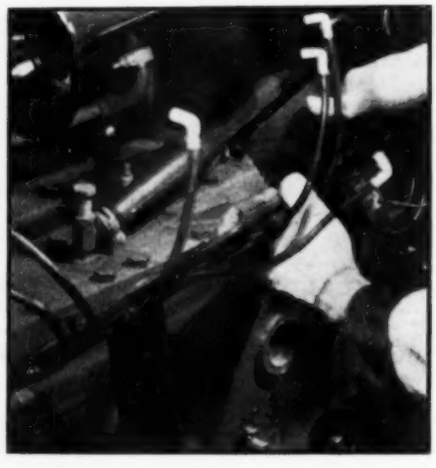

FIGURE 14—Manifolds, or conduits, for holding high-tension ignition cables are nowadays made of metal, grounded to the engine-block. . . . In the "good old days" these used to be made of "fibre"; that was before we knew better. . . . Because the constant surging of high-tension current through the wires sets up an electrical field around each cable. . . . This electrical field must be grounded to the block, if possible, so that "ozone" will not be liberated, to attack the rubber insulation. . . . Hence, a good grounding of all conduits or manifolds is necessary.

The manifold or conduit itself should be grounded properly, by making a *clean* contact with the engine block, as illustrated in Figure 14. If it is not, improper motor performance may result. Where spark plugs and their cables are covered by metal covers, such as in the case of overhead-valve engines, as shown in Figure 12, the cables should be more frequently and more thoroughly examined for faulty insulation, since the temperature is generally quite high beneath these covers, and the life of some cables may be much shorter.

It is probably "old stuff" to you, but the distributor-cap and rotor should also be examined for cracks, arcing or bad burning, and should be replaced with new ones if any evidence of deterioration is present. You cannot examine these parts too carefully. Figure 9 shows a typical 6-cylinder distributor cap and rotor; nothing new about that, but important to check them.

The spark plugs, too, should be carefully examined, cleaned on a good cleaner, and the gaps re-spaced, as shown in Figure 13. This completes the checking procedure for the high-tension system.

However, there are other tests that *could* be performed, such as measuring the quantity and the quality of the high-tension current. The "Tune-Up" article in our August issue covered these points quite thoroughly, so we shall not repeat them here.

And now we come to a discussion of high-tension cables. The value of high-tension cables depends upon their ability to carry the required surges of high-tension electric current from the coil to the spark plugs, without the cable insulation's breaking down.

High-tension cables must withstand heat, oil, grease, cold and chafing. They must also withstand corona — a strange electrical phenomenon that deteriorates rubber rapidly. In explaining corona, it can be said that the surge of high-tension current through the circuit builds up an electrical field around each cable. This electrical field liberates the oxygen in the surrounding air, to form "ozone" which attacks the organic rubber insulation of the cable, if it is not properly protected.

Subjecting the rubber to ozone for any considerable period of time destroys the life of the rubber insulation and renders the cable useless. A piece of high-tension cable that was typically destroyed by "ozone" is illustrated in Figure 7. Notice the cracks in the rubber insulation.

Because of the many factors which affect the efficiency of high-tension cables, it goes without saying that only the highest quality cables should be used whenever replacement is necessary.

Automotive engineers have agreed that high-tension cables must pass certain standard tests before they can be accepted as original equipment. These tests include hot oil—at two hundred degrees Fahrenheit; the oven test—at three hundred degrees Fahrenheit; voltage and corona test—at thirty thousand volts. For replacement purposes, it is well to use quality cable, we will repeat.

In this connection, you might go back to your August issue of this year and read the brief item on page 10, in which some interesting test-data on high-tension cables was presented.

Of course, there are various makes and types of high-tension ignition cable on the market. Opinions vary widely as to which type or make is the best, and why. Cotton-covered cable (over the rubber) which was further insulated with lacquer, enjoyed

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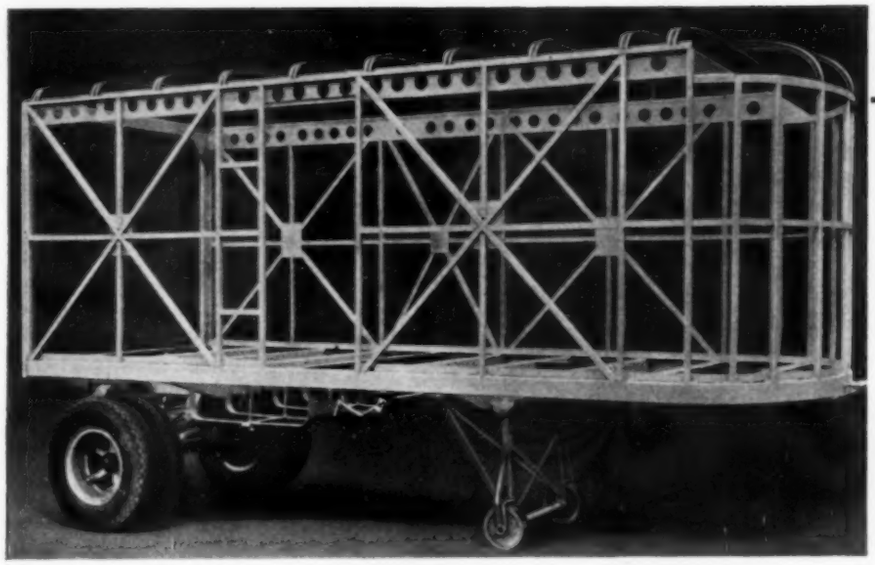

New Fruehauf Trailer *Features* Airplane Construction

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HIGH-TENSILE STEEL or aluminum? . . . This new job uses BOTH of these materials—the steel for the frame-work and the aluminum for the paneling. . . . The airplane construction slashes weight and increases the strength of this up-to-date "semi."

SHOWN here are two views of a new, light-weight-alloy, frameless semi-trailer, designed and built by Fruehauf Trailer Company, Detroit, Mich., to enable operators of commercial vehicles to combat severe weight limitations.

Several already in use are reported to be piling up excellent performance records, and Fruehauf is rushing production in order to stock all sales offices as quickly as possible.

With framework built of high-tensile steel, this new Fruehauf semi-trailer makes great strides in converting unproductive weight into additional payload capacity. The light, tubular steel construction of the body—similar to modern airplane structure—serves to "tie-in" the body with the chassis as a complete unit. Vertical posts with diagonal trusses—a feature of this construction—add greatly to the strength of the trailer.

Because the body framework has been designed so as to be able to carry the rated load without stressing the side panels, Fruehauf uses aluminum paneling for the sides and front—a further means of weight-cutting.

These side panels can be readily removed and replaced without disturbing the skeleton structure—a decided service advantage. With few exceptions, all connections in both base frame and body are nested and welded for extra strength.

Other features of Fruehauf's new alloy-frameless trailer include an all-metal, rust-resistant roof which effectively reflects the sun's rays; steel-covered rear doors and tailgate; corrugated metal slats which run horizontally around the interior walls of the trailer to protect the side panels; special light-weight tire carrier; and Fruehauf's new, progressive-type springs, which are said to save additional weight by doing away with auxiliary springs.

Although slightly higher in cost than the ordinary freight-hauling trailer. Fruehauf's new alloy-frameless unit makes transportation dollars go further, it is claimed, by virtue of its greater payload capacity, assurance of longer life, and ease with which it can be serviced.

The illustration at the top of the page shows a skeleton view of Fruehauf's new, light-weight alloy frameless trailer, during the process of construction. The vertical posts and diagonal trusses are made from extended, light-gauge, square seamless tubing, in which high-tensile steel is used as the base metal. The construction is said to be similar to airplane construction.

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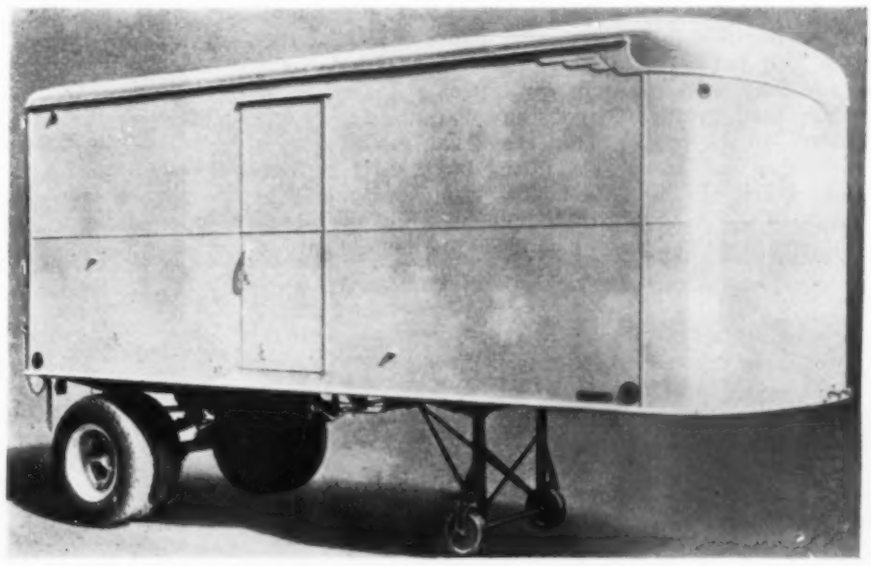

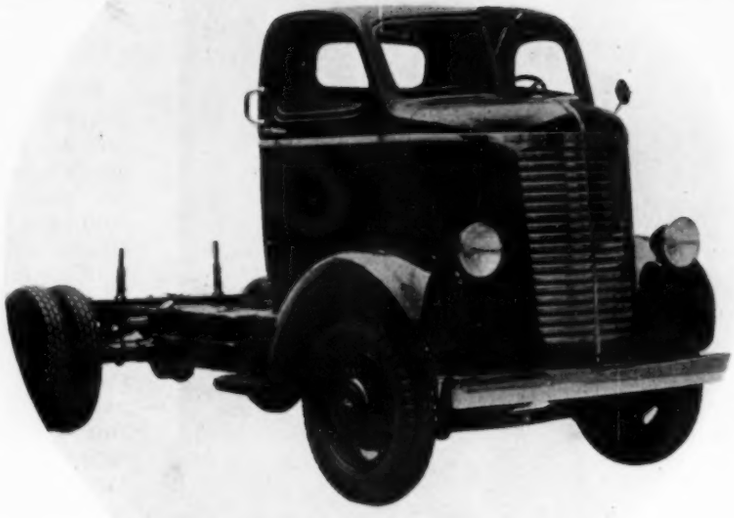

CHEVROLET

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Announces Factory-Built C.O.E.; Conventional 1939 Models Offer New 2-Speed Axle, Power Brakes

CHEVROLET'S commercial car and truck line for 1939 is the broadest and most diversified in the company's history. There are 39 models, on eight wheelbase lengths, with a very wide range of capacities. New this year are two mechanical improvements of major character, a heavy-duty two-speed axle, optional on the heavy-duty models, and optional power brakes.

The color choice is also the widest Chevrolet ever has offered; the company has selected for regular production 10 shades in addition to white.

Chevrolet also offers a brand-new line of Chevrolet-built heavy-duty cab-over-engine trucks, as illustrated above. The c.o.e. job is made in two wheelbases—107⅝ and 131⅛-inches, comprising both body and chassis types. Stake and platform bodies are available in each wheelbase, and in addition, the stake-express and stock-rack bodies are available on the larger wheelbase series.

Two chassis types in the c.o.e. line—chassis-and-cab, and chassis-and-cowl plus windshield, are also produced on each wheelbase. The short wheelbase jobs are intended for tractor-trailer use, and are also adaptable to dump-bodies and special panel bodies. Large panel and panel-stake bodies can be mounted easily on the long wheelbase chassis types.

Explained briefly, the design of the c.o.e. trucks consists of the conventional truck cab mounted over the engine and front axle of the heavy-duty conventional truck chassis. Revisions have been made, of course, to accommodate the new design and the necessary new parts and units have been engineered into it.

All conventional Chevrolet truck units will have a 1½-inch longer wheelbase in 1939. Wheelbases for the light delivery units will be 113½ inches; for the ¾-ton, 123¾; for the heavy-duty models, 123¾, 133, and 158½ inches.

Driver-comfort has been a primary thought in the designing of the new line. Running boards on all units are one inch wider to facilitate entering and leaving the cab, which this year is 1½ inches longer, 1⅞ inches higher, and 1¼ inches wider. Side doors on panel models are 1½-inches wider also.

All cabs have 16 inches of foot-room between the seat-riser and the door-hinge pillar, so there is no awkward maneuvering in entering or dismounting from the cab. Seat backs in the cabs are nearly 3 inches lower and the cabs have been so designed as to give more head-room. Softer springs will "give" for a maximum of about two inches more head space.

A more attractive instrument panel has been designed for the 1939 trucks, with the instruments clustered for easier reference. Choke and throttle controls have been recessed at the lower edge of the panel center.

Thoughtful consideration of the driver is apparent in the design of the new cabs, not only of the conventional models but of the cab-over-engine series, too. In all units, seats are deeply cushioned, well padded, and extend full width, being nearly three inches wider than heretofore, and enabling three men to sit abreast in ease. Controls are conveniently grouped, steering

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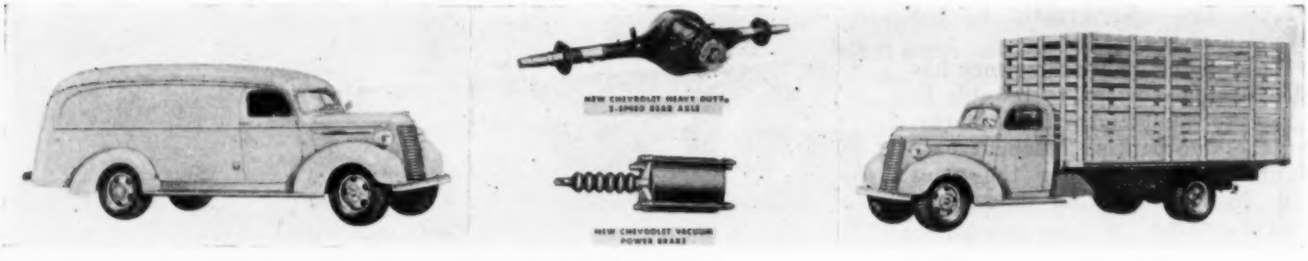

DODGE's Trucks for '39

STREAMLINED from bumper to bumper in a refreshing style, and incorporating many engineering features made possible by a giant new truck plant, the 1939 Dodge Trucks feature a radically changed grille and a sloping, one-piece, V-shaped windshield that opens. (The new Dodge Diesel is illustrated and described elsewhere in this issue.)

Of considerable interest is the announcement that Dodge this year offers new Dual-Purpose models in 1½-ton heavy-duty, and 2-ton models for use where unusual flexibility is required. A two-speed axle installed in the Dodge factory and available in two combinations of ratios, gives each model at least 8 speeds forward and 2 in reverse. Ratios are 5.14/7.15 and 5.83/8.1.

In addition to the new streamlined styling, new features common to all 1939 Dodge trucks are the following: The cabs are larger and more comfortable; running-board splash-shields are integral with cabs; fully-skirted express and panel bodies; increased seat heights; windshields located for improved vision; cab upholstery is blue. Frame side-rails will be extended to support a new channel-type bumper without the use of intermediate brackets. This added support is said to be strong enough to serve as an additional frame cross-member. Longer life will be added to Dodge truck cabs, bodies and sheet metal because of a new type of stronger steel used in the trucks. This steel has 42,000 pounds per square inch, minimum elastic limit.

A FEATURE of all 1939 Dodge Trucks is the roomy, beautifully-finished cab. All cabs in the new line are wider, with greatly improved vision and driver-comfort.

Features of Dodge Truck's 6-cylinder L-head engines, of course, are continued in the 1939 motors. Six of the economy features common to all Dodge Truck engines are: (1) exhaust valve seat inserts; (2) spray-cooled exhaust valve seats; (3) four piston rings; (4) aluminum alloy pistons; (5) full-length water jackets and (6) positive oil cooling.

General technical and mechanical data of interest to fleet owners is listed as follows: Air cooled generator—air cooling improves performance because generator functions at a lower temperature.

By-pass thermostat—by-pass thermostat prevents water from circulating through radiator and recirculates it through the engine only, until engine is warmed; a gas-saving device which also assures longer engine life.

Vacuum spark control—automatic spark control in ½, ¾ and 1-ton trucks avoids spark knock; increases fuel economy at light engine loads.

Roller bearing universals—in place of plain bushings in universal joints, Dodge has roller bearings which require less lubrication, check backlash and deliver power to rear wheels more efficiently.

Full-pressure lubrication—positive full-pressure lubrication insures an ample supply of oil to bearings.

Air cleaner—the Dodge air cleaner is standard on all truck models.

Four bearing crankshaft—four bearings are used throughout. The 3-ton truck has 7 bearings.

Transmissions—three-speed transmissions are standard equipment on the ½, ¾ and 1-ton trucks. 1½-ton trucks have four-speed and 2 and 3-ton models have five-speed tranmissions. Special four-speed transmissions are available for wide-range performance on ½, ¾ and 1-ton models.

Brake system—Dodge continues the use of hydraulic brakes. The emergency brake is a separate unit. It does not work directly on the rear wheels; the braking force is applied through the drive-shaft.

Amola steel for vital parts—Amola steel is a new kind of alloy which is highly resistant to stress and wear. It is used in axle-shafts, springs and other essential parts.

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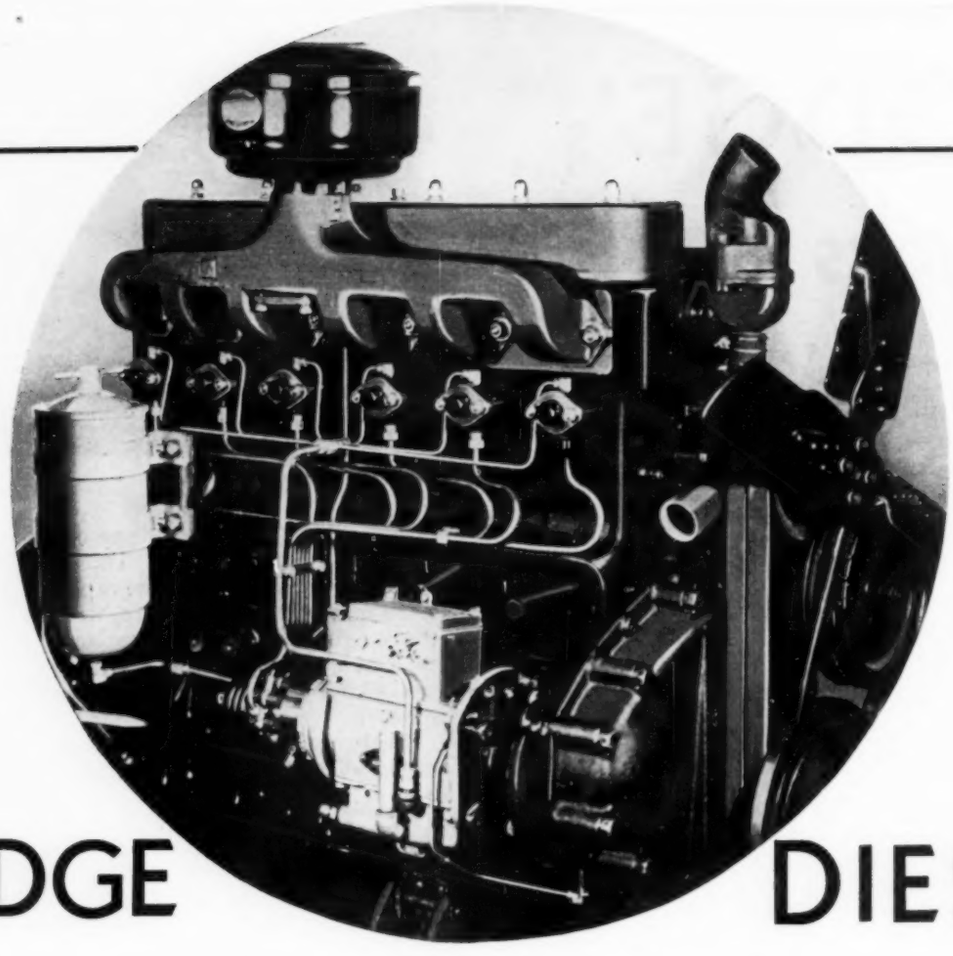

DODGE DIESEL

Brand-New Job, to be Used in Dodge 3-Tonners, is Dodge-Built

DODGE TRUCK Division of Chrysler Corporation, Detroit, Mich., after a decade of unpublicized experimentation and development, will enter the oil-burning engine field in 1939 with a Dodge Diesel 3-ton truck, according to an announcement just made by J. D. Burke, Director of Truck Sales of the Dodge Truck Division.

The Dodge Diesel engine will be displayed at the National Automobile Show in New York's Grand Central Palace, and the 3-ton Dodge Diesel truck model will be exhibited in the Dodge Truck exhibit at the National Motor Truck Show, Port of New York Authority Building, New York City, both of which will be held this month.

Emphasizing that the Diesel would be available only in 3-ton trucks, Mr. Burke said: "We have subjected our experimental models to the most rigorous tests during the past several years and are now firmly convinced we have corrected our previous deficiencies such as, for example, 'Diesel knock,' smoking and starting difficulties."

For the past two years Dodge Diesels have roamed the hills and mountains in Pennsylvania and the Southwest. Others were subjected to tests in Florida and Michigan, in comparison with gasoline engine powered trucks with identical loads, over the same grades and under adverse weather conditions.

Because Dodge engineers believe that Diesels are most profitable in heavy-duty continuous operations, Dodge has developed its Diesel for its 3-ton trucks only, rather than for their lighter models.

The new Dodge Diesel engine has full-length water jackets, a by-pass thermostat, chain-driven camshaft, precision-type bearings, full-pressure lubrication and aluminum alloy pistons.

It is a 4-cycle, 6-cylinder engine having 331 cu. in. displacement. The bore is 3¾ in., the stroke 5 in., and the crankshaft has seven main bearings. Mr. Burke said that Dodge's new Diesel engines will be manufactured in the Dodge plant.

Some of the engineering features that are found in the new Dodge Diesel include the following:

Automatic Injection Advance: Dodge engineers say that theirs is the first Diesel engine having injection timed according to engine speed, to assure top fuel-economy at all speeds up to the maximum.

Injection Pump: Dodge has a simplified injection pump which is compact and employs only one valve that is said to meter exactly equal amounts of fuel to all cylinders.

Anti-clogging Nozzle: Dodge's pressure-controlled pintle cleans the nozzle after each injection; thus dribbling is eliminated, the engineers promise.

Cold Weather Starting: This new engine in the Diesel field has choke-method starting, controlled by a pull-out lever on the instrument board. Choking automatically stops when the engine is running.

"Energy Cell" Controlled Combustion: A high turbulence method of thoroughly mixing fuel and air for uniform complete combustion assures maximum power and fuel economy. This Diesel has the Double-O combustion chamber, which is said to concentrate the main

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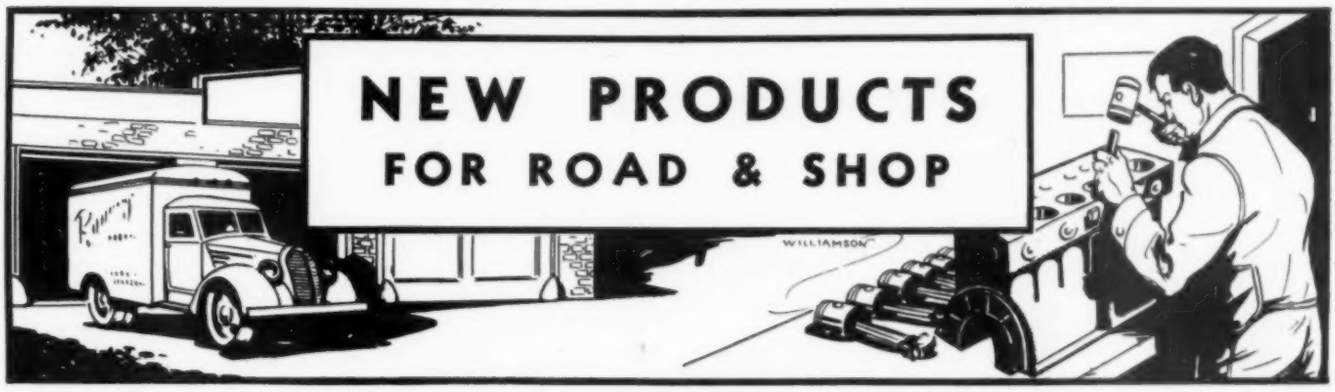


Time-Saver for Wash-Rack

HERE is a handy new brush for the wash-rack, made by Flour City Brush Co., Minneapolis, Minn., makers of all kinds of home and industrial brushes.

This new brush is of the "fountain-type." Substantial, long-wearing bristles are set in a head of hollow, cast aluminum. Handle is also of hollow cast-aluminum, four feet long. In use, the water-hose is attached to the handle, and a continuous stream of water flows through the brush for rapid washing of vehicles.

The complete brush unit weighs less than three pounds and bears a liberal guarantee. For further information, also a big, 72-page catalog of all types of brushes, address The Flour City Brush Co., 301 Fifth Ave. So., Minneapolis, Minn. . . . Mention of FLEET OWNER is always appreciated.

•

New Motor Oil for Fleets

A MOTOR OIL designed especially to meet the requirements of truck and bus fleet operators was announced recently by the Esso Marketers, who will market this product under the brand name "Stanfleet Motor Oil." The oil was developed in the company's laboratories following comprehensive engine tests, after which it was placed in actual operation in truck fleets whose operators cooperated in a field test program.

This product has been introduced following the demands of truck fleet operators for a lubricating oil that would stand up under the severe service imposed by sustained hauls of heavy loads at high speeds in varying temperatures, which put heavy strains on truck and bus engines.

It is especially refined by the advanced solvent refining process, has a high viscosity-index, low carbon-forming tendencies, low pour-point and unusual resistance to piston varnish, ring-sticking and sludge deposits, according to the refiners.

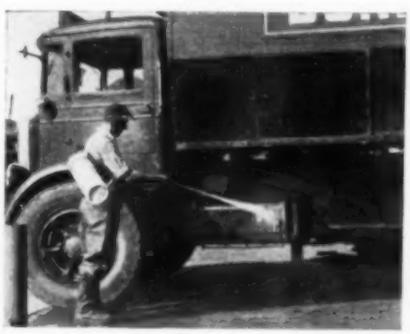
•

New "Oakite No. 9" Book

SPECIALLY prepared for truck and bus fleets is a revised and enlarged booklet just issued by Oakite Products, Inc., New York, N. Y., incorporating new data on exterior motor cleaning and allied automotive maintenance operations.

In discussing their recently-developed oil-soluble emulsifier, Oakite Composition No. 9, the makers state that it makes possible the fast and effective removal of grease and oil deposits with *cold* solutions. This is due to the fact that this material, used with kerosene, provides a solution that combines high emulsifying qualities with rapid penetrating action.

Grease-covered surfaces are merely sprayed, brushed or swabbed with this mixture and allowed to soak for 30 to 40 minutes, during which time the deposits are loosened and softened, so that the subsequent pressure-rinse leaves motor exteriors or other surfaces dry and free of films.

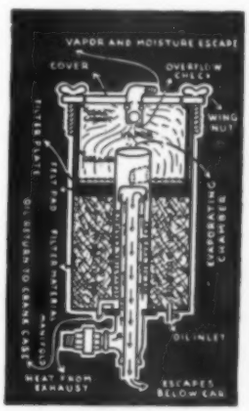


Also fully described and illustrated are such operations as removing sludge and carbonized oil deposits from inside surfaces of gasoline and oil engines, cleaning aluminum and other metal parts, and cleaning floors.

To obtain copies of this 12-page booklet, please write to Oakite Products, Inc., 52-G Thames Street, New York, N. Y. . . . Mention of FLEET OWNER always helps.

"Reclaimo" Oil-Filter

HERE is a new oil-filter that removes solids through filtration; and also removes gasoline dilution, water, corrosive acids, etc., through



the use of exhaust heat, according to the manufacturer's description.

The use of this filter on any automotive engine is said to provide indefinite life to the crankcase oil. Installation is comparatively simple. The accompanying diagram shows how it is constructed and how it operates.

For further details address Reclaimo Manufacturing Co., 2306 N. Western Ave., Department T, Chicago, Ill. . . . We always appreciate it when you mention FLEET OWNER.

•

Kano Penetrating Oil

A NEW method to reduce the surface-tension of liquids is said to be responsible for the development of Kano Penetrating Oil.

The makers claim that this oil will pass through openings as small as one-millionth of an inch, proven by tests made with two ground-glass slides clamped together. The oil, of course, is intended as a handy aid in loosening frozen threads, clamps around mufflers and exhaust pipes, fender and body bolts, spring and shackle bolts, etc.

Wherever there is rust, heat, corrosion or accumulations of gum, this oil is recommended by its makers. . . . For complete information and free sample, write to Norwood Products Co., 75 E. Wacker Drive, Chicago, Ill. . . . You'll tell them you saw it in FLEET OWNER, won't you?

Fuel Consumption Meter

HERE is a device that should fill a long-felt want—the "Akraflo" Fuel Consumption Meter. It can be installed on any vehicle, either temporarily or permanently, and will give an accurate record of the gasoline

consumed by that vehicle, the reading being given in gallons and tenths-of-a-gallon.

Naturally, the "Akraflo" is installed in the fuel-line, between carburetor and fuel pump. Measurement is by positive displacement, a measuring chamber containing a flexible, sealed piston being used. Accuracy is insured by the use of an air separator, which permits the delivery of only "solid" fuel to the meter.

Models are available with the reading dial directly on the instrument itself, and also with the reading dial located at some distant point—on the dash, for instance. No electricity is used, excepting on the remote-reading model.

The manufacturers have just released an interesting 8-page folder, which completely illustrates and describes the Akraflo meter. . . . For your free copy address S. F. Bowser & Co., attention of Mr. H. J. Slack, Fort Wayne, Ind. . . . You'll mention FLEET OWNER, won't you?

•

New Seiberling Tire

A NEW "Safety tire" is offered by The Seiberling Rubber Company, Akron, Ohio, which incorporates three new safety principles.

The first feature is the seven-rib "saw-tooth" tread design, said to give anti-skid protection for the life of the tire. . . . Then there is the patented heat-venting principle, which has been used in Seiberling truck tires, in which bullet-shaped vents pierce the shoulder area and penetrate to the hottest part. . . . Thirdly, there is the heat-proofing feature, brought about by the use of "Saf-Flex" cord, identical with that used in Seiberling truck tires.

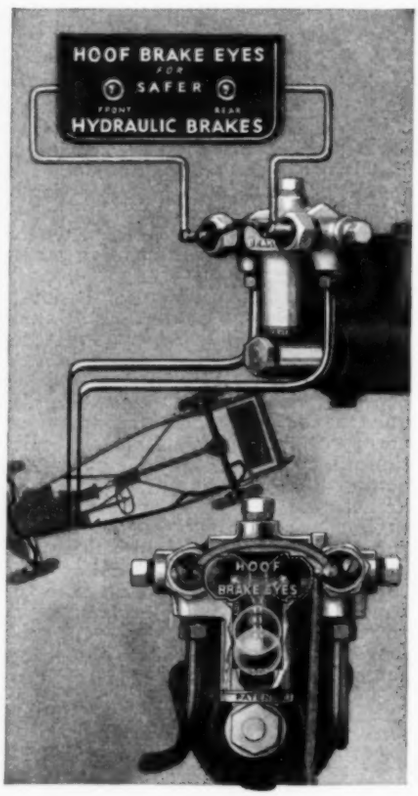
In addition, the new tire, manufactured in popular passenger-car sizes, is said to be silent in operation. Both black and white side-walls are available. For details, prices and discounts, address The Seiberling Rubber Company, Akron, Ohio. . . . Mention of FLEET OWNER is always appreciated.

•

"Eyes" for Hydraulics

A NEW safety device, which assures drivers of any vehicle having hydraulic brakes, of *always* having brakes, even though breakage or leakage may occur anywhere in the system—and providing a warning signal on the dash when failure does happen, is announced by Hoof Products Co., Chicago, Ill. It is called "Hoof Brake Eyes."

This device consists of a unit to be attached to the master cylinder and a dash signal. The hydraulic lines run from the Brake Eye unit to the



front and rear brake assemblies. A balanced synthetic rubber ball, in a vertical chamber, moves up and down with the flow of brake fluid. The moment that leakage or breakage occurs, the ball is forced into a special seat leading to the defective line, sealing it tightly.

The dash indicator consists of two red "eyes" marked front and rear, which flash each time the brakes are applied, when both lines are functioning normally. Should a leak occur, the respective "eye" will fail to light, thus warning the driver and telling him that one pair of his brakes (front or rear) is not working.

It is predicted that the use of this device will cut insurance premium costs. . . . For complete details, literature, prices and discounts, address Hoof Products Co., 166 N. Franklin St., Chicago, Ill. . . . You'll mention FLEET OWNER, won't you?

"Gunk" Now Odorless

HYDRALENE, a new odorless cleaning compound, is the latest development of The Curran Corporation, Malden, Massachusetts, manufacturers of "Gunk" self-emulsifying degreasing solvent.

This recent development required several years of chemical research before it was possible to introduce commercially a "Gunk" without odor. It is soluble in kerosene or other petroleum distillates in all proportions without separation or losing its homogeneity, it is claimed.

The standard "Gunk" that is now being used commercially is characterized by the unmistakable odor of phenol or "health-soap." This will be continued as the main product. The new "Hydralene Gunk" will sell at a slight premium; it is especially adapted for use by dairy or bakery truck garages where the odor of phenolic "Gunk" might prove to be objectionable.

For further details and information write direct to The Curran Corporation, Malden, Mass. . . . Mention of FLEET OWNER always helps.

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New Tire-Chain Service

DURING October, The McKay Company, Pittsburgh, Pa., began a nation-wide mailing to fleet owners, showing them not only the advantages of this well-known line of truck chains—but also telling them where to get quick deliveries, locally.

The chain maker says that this buying information should be of particular value when an urgent need for chains is caused by weather stress.

A hang-up card, bearing the name of the man receiving it, was mailed to all fleet operators. This card, prepared personally for each fleet operator, shows at a glance the names and addresses of McKay jobbers in his vicinity.

One of the products featured in the mailing is the McKay Multi-Grip Truck Chain, illustrated here. The unique tread design—which uses double reinforcing bars—is claimed to give "super wear and super traction." The manufacturer refers to actual fleet-owner road tests, as proof. . . . For details address The McKay Company, McKay Bldg., Pittsburgh, Pa. . . . Mention of FLEET OWNER always helps.

Steam Conversion Unit

THIS new product, known as the Bridgeport Steam Conversion Unit, is designed to inject vaporized steam into any hot-water-heater, instead of hot water.

It is claimed that this unit will step up the efficiency of any hot water-heater, old or new. It is easily installed and low-priced, the makers stating that it will "steam-heat a car in two blocks."

At present it is available only for Ford V-8 cars and trucks, but will later be offered for other makes as well.

Further details may be obtained from The Bridgeport Thermostat Company, Bridgeport, Conn. . . . Mention of FLEET OWNER always helps; we'd appreciate it, too.

•

Automatic Battery Filler

HERE is a brand-new device that promises to banish battery troubles—especially those caused by failure to keep the water-level above the plates. The Automatic Battery Filler, as it is called, maintains the proper level in any battery on which it may be installed, at all times and *without attention.* In addition, it does away with slopping of the solution, caused by filling the cells too full.

Briefly, the device consists of a rack with three bottles which are connected to each cell by *double* tubes. Or-

dinarily, the bottles are filled with distilled water, and due to the circulation of the electrolite solution from the battery to the reservoir bottles and back to the battery, the bottles will ultimately contain the same solution as is in the battery.

This feature enables the operator to also use the Automatic Battery Filler as a visible gauge, to warn of impending damage or defect. For instance, when the plates or separators begin to disintegrate, the solution in the bottles will become full of sediment and it often changes color. Should the battery develop a crack or leak, this condition is immediately shown up, by the increased water consumption from the respective bottle.

Interesting literature, prices and discounts are now ready, telling all about the Automatic Battery Filler, who is using it, etc. . . . For your free copy, address Automatic Battery Filler Corporation, 2768 Webster Ave., New York, N. Y. . . . Mention of FLEET OWNER is always appreciated.

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"Clamptite" Door Lock

THIS brand-new universal door and end-gate lock is offered by Eberhard Manufacturing Co., Cleveland, Ohio. It is recommended for use on

refrigerated, insulated and van bodies, and can be applied to right-hand or left-hand doors, single or double, and also to end-gates, without change and without addition of parts.

The new lock consists of a sturdy operating-rod, mounted in bearings and carrying heavy malleable locking-lugs, which mesh into keepers of ample size. The swivel-type handle can be located at any position along the rod, for convenience in operation.

The lock can be installed with either two or three sets of bearings, lugs and keepers, as desired, depending on the size and type of door. Standard mechanism will fit doors up to about 69 inches high, and the maximum projection from the door is 2¼ inches.

Two types of handles are available. One is furnished with a built-in Corbin lock, the other with loops for a pad-lock. Both types provide ample leverage. For end-gate mounting it is set horizontally, with the handle in the center.

For finishes, details and prices address Eberhard Manufacturing Company, Cleveland, Ohio, mentioning FLEET OWNER, if you please.

•

New Electric Flares

TURN-SIGNAL Corporation, Philadelphia, Pa., is offering a new patented electric flare, which does *not*

deteriorate when not in use. A handy kit, containing a set of three, is illustrated here.

The flare is housed in a self-contained, sealed unit, approximately 5" high by 3½" in diameter. The lighting current is generated by four special dry-cells, which remain chemically inert until the flare is to be put into use. To light it the driver simply strikes the bottom of it on a hard surface, which starts the chemical action.

Ample current will be generated, it is claimed, for a full light intensity for from 14 to 16 hours. Thereafter the light will gradually diminish until the chemical action ceases. There are *no* switches or other connections to corrode or get out of order. Total burning is about 24 to 30 hours.

This flare is said to be fully approved by the Electric Testing Laboratories and also by the Underwriters' Laboratories. It is especially adapted to use on gasoline-carrying trucks. For interesting circular, list prices and fleet discounts address Turn-Signal Corporation, 400 E. Rittenhouse St., Philadelphia, Pa. . . . Mention of FLEET OWNER always helps.

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New Acheson Bulletins

THE "how and why" of the graphoid surface is the latest subject discussed in the new technical bulletin series of the Acheson Colloids Corporation, Port Huron, Michigan. Readers interested in the theory and application of non-oily, yet unctuous, graphite surfaces may apply direct, asking for Bulletin 220.4.

Folder 626, also available, covers the treatment of screw threads with colloidal graphite. How this product aids the tightening of screws, reduces galling, minimizes corrosion and eases later removal in thread assemblies is fully discussed.

When writing for the above bulletins, which come by *mail*, without obligation, mention of FLEET OWNER will be appreciated. . . . Address Mr. E. A. Bodine, c/o Acheson Colloids Corporation, Port Huron, Mich.

New Improvements in Colloidal Graphite

"DAG" colloidal graphite is to be available in an even higher quality than heretofore, according to an announcement by Acheson Colloids Corporation, Port Huron, Michigan.

Four years of experimental investigation has developed a new process permitting the commercial production of graphite products having considerably smaller particle size and correspondingly improved suspension.

Instead of a single grade as before, Acheson plans to market several, distinguished primarily by a range of particle size. The first, or top grade will contain particles ranging between one micron and the submicroscopic (1 micron = 0.00003937 inches). The particle size in this product is so minute that it may be said to border on true solution, (such as sugar in coffee, salt in sea water) although retaining all the valuable inherent qualities of solid graphite.

A further and equally important advantage is the availability of "dag" colloidal graphite in a considerably wider range of vehicles. In addition to water, petroleum, castor oil, glycerine and varnish, excellent dispersions in kerosene, carbon tetrachloride and similar light-viscosity fluids may be had. Heretofore, this has been impractical because of rapid coagulation of the particles and consequent settling out of solution.

The combined improvement in particle size and suspension now opens new fields of industrial use for "dag" colloidal products. Having finer particles, the new colloidal graphite more readily impregnates porous bodies and imparts to them desirable qualities of lubricity, electrical conductivity and coloring. The lubrication of remote and closely fitting parts is also facilitated. Finally, with a greater numberber of carriers possible, new and now unforseen applications will undoubtedly develop. The dispersion of colloidal graphite in highly volatile carbon tetrachloride, for example, is already reported valuable for use in forming dry films which have interesting electrical and adhesion properties.

For further information address Edw. A. Bodine, c/o Acheson Colloids Corporation, Port Huron, Mich. . . . Mention of FLEET OWNER is always appreciated.

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Hills Now Timken Sales Manager

YALE D. HILLS has been made Manager of Distributor Sales for the Service-sales Division of The Timken Roller Bearing Company. . . . For several years he has been manager of the Los Angeles territory branch of the Company. Mr. Hills' new headquarters will be at the main Timken factory in Canton, Ohio. . . . Our best to you, Mr. Hills!

Now It's "American Bosch Corporation"

AT a special meeting held on September 26th at the Company's New York Office, stockholders of the United American Bosch Corporation voted to change the name of the Corporation to "American Bosch Corporation," and to change authorized capital stock to 750,000 shares, of par value $1.00 per share.

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Dodge 1939 Trucks

(*Continued from page* 55)

Dimensions and pertinent facts peculiar to each of the new Dodge truck models are as follows:

Half-Ton Models—Body types in the ½-ton, 116-inch wheelbase series are panel, pick-up, canopy and screen. New longer and wider express body (17 inches high, 78 inches long and 48¼ inches wide) is announced. The front springs have been increased from 36 to 39 inches. The ½-ton Dodge truck has a hypoid rear axle. The axle-shafts are made of Amola steel and tapered roller bearings are used throughout. Engines are mounted on rubber at front and rear. The ½-ton trucks have optional rear axle ratios of 3.73, 4.1 and 4.78 at no extra cost.

Three-Quarter-Ton Models — Express, stake and platform are body types in the ¾-ton series which is available only in 120-inch wheelbase. Maximum gross rating is 5,000 pounds; cab-to-axle dimension is 44-11/16 inches. Front springs in these units also have been increased to 39 inches and wheel-housings have been removed from the stake and platform bodies. The express body measures 48¼ inches wide and has been lengthened 6 inches to a total of 90 inches. The ¾-ton trucks have new pistons, lighter in weight, more resistant to wear and less likely to scuff during breaking in period. As in the ½-ton models, engines are mounted on rubber. Optional rear axle ratios of 3.73, 4.1 and 4.78 are offered at no extra cost.

One-Ton Models—Body types in the 1-ton series are panel, express, platform, stake, canopy and screen. Maximum gross rating is 6,000 pounds. Two wheelbase lengths are available, 120 and 133 inches. Cab-to-axle dimension on the 120-inch wheelbase is 44-11/16 inches and 57-11/16 inches on the 133-inch wheelbase. Engines are mounted on rubber. The three optional rear axle ratios are 4.3, 4.78 and 3.9.

One-and-One-Half-Ton Models—Dodge offers two lines of 1½-ton trucks—standard and heavy-duty models with respective gross rating capacities of 10,000 and 12,000 pounds. Both lines are available in three wheelbase lengths; 126½, 133 and 160 inches. Body types are platform, stake and an express on the standard only. The heavy-duty line offers a special wheelbase of 190 inches for school bus service and for van-type bodies. Accessibility and comfort are two features of the 1½-ton cab-over-engine job, available on the heavy-duty chassis and developed by Montpelier Manufacturing Company. Cab-over-engine wheelbase lengths are: 108, 133 and 160 inches. Single and dual rear wheels are interchangeable on one hub. Rear spring-shackle pins and front eye-bolt are larger in diameter; front spring-shackles are heavier. Optional rear axle ratios, at no extra cost, are 5.428, 4.875 and 5.857.

Two-Ton Models—Two-ton trucks have a maximum gross rating of 14,500 pounds and are offered in wheelbase lengths of 136 inches (cab-to-axle 60-11/16 inches); 148 inches (cab-to-axle 72-11/16 inches); 160 inches (cab-to-axle 84-11/16 inches); 178 inches (cab-to-axle 102-11/16 inches) and 220 inches (cab-to-axle 144-11/16 inches.) These models are provided in flat-face cowl, windshield cowl, cab and platform and stake in the 136 and 160-inch wheelbase chassis. The Montpelier cab-over-engine also is available in the 2-ton line. Wheelbase lengths are 108, 136 and 160 inches. Front wheel kingpin and inner wheel bearing diameters have been increased. The 2-tonners have optional rear axle ratios of 5.11, 5.625, 6.33 and 7.1 at no extra cost.

Three-Ton Models—Dodge will continue to offer 3-ton models in conventional and cab-over-engine chassis, the former available as cab-and-chassis, cowl with windshield, and flat-faced cowl. The 3-ton cab-over-engine is manufactured by Dodge in wheelbase lengths of 96, 108, 122 and 140 inches. The company enters the Diesel engine field for the first time with a Dodge Diesel 3-ton truck, illustrated and described elsewhere in this issue.

For literature covering the new Dodge trucks, and also the new Dodge Diesel, address Jos. D. Burke, Director of Truck Sales, Dodge Truck Division, Detroit, Mich. . . . You'll mention FLEET OWNER when writing, won't you?

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Dodge Diesel

(*Continued from page* 56)

mass of air at center of the chamber where the fuel is injected.

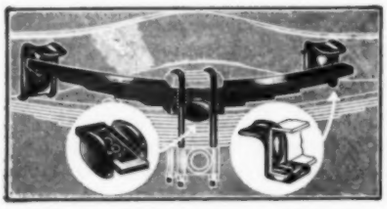
Starting aids are unnecessary under ordinary conditions, it is claimed, because of Dodge's intake air-heater located in the air intake manifold. This is controlled from the dashboard, is set according to temperature and automatically shuts off to save the battery, the factory announcement states.

New illustrated literature is now ready, completely illustrating and describing the new Dodge Diesel, and showing power-curves, torque and horsepower development, etc. . . . For your free copy address Jos. D. Burke, Director of Truck Sales, Dodge Truck Division of Chrysler Motors, Detroit, Mich. . . . Mention of FLEET OWNER, when writing for this will identify your inquiry and help to speed up the service. . . . We'd appreciate it, too.

Helper Springs

MAREMONT Automotive Products offers helper springs for Ford trucks and cars. The spring for 1 and 1½-ton trucks is illustrated here.

The makers point out that the brackets are of heavy construction



with reinforcing hooks that fit under the frame. A combined spring aligner and spacer block keeps the springs in line.

Helper springs are also available for all other Ford models, both in transverse and side types. . . . For complete information address Maremont Automotive Products, Inc., 17th St. & So. Ashland Ave., Chicago, Ill. . . . You'll mention FLEET OWNER, won't you?

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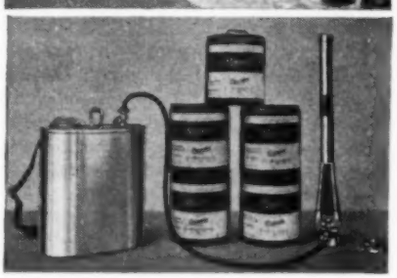
Foam-Making Nozzle

PYRENE Manufacturing Company, Newark, N. J., announces a larger capacity Phomaire Play Pipe that makes 500 to 750 gallons of fire-smothering foam per minute and produces 350 gallons of foam from only one gallon of Phomaide solution.

This material converts a water stream into a foam stream by *mechanical* action. When the pipe is connected to a water line, Phomaide and air are drawn into the water stream to form foam. One person is required to handle it. Operation may



be continued indefinitely by merely pouring additional solution into a knapsack carried on the operator's back.

For complete details regarding this fire-extinguishing system address Pyrene Manufacturing Co., 560 Belmont Ave., Newark, N. J. . . . We always appreciate it when you mention FLEET OWNER.

Snap-On Red-Cap Roll-Cab

AN entirely new line of quality tool chests and roll-cabs is announced by Snap-On Tools Corporation of Kenosha, Wisconsin. This line will be known as the "Snap-On Red-Cap," and several types and sizes of tool chests and roll-cabs are included.

In keeping with today's trend, these chests and roll-cabs incorporate a modern appearance with utility, in contrast to yesteryear's "just plain tool container." Finished in a deep crimson with chromium-plated and black bakelite handles and trimmings, the Red-Cap line represents an answer to the demand for more up-to-date tool-box equipment.

Illustrated is the large Red-Cap combination of chest and roll-cab. . . . The sixteer drawers, several of which are internally separated into two or

more sections, are capable of holding an extremely large tool outfit with plenty of bottom space for the larger units.

The turret-dome and drop-front on the chest lift together and lock securely when closed. A descriptive pamphlet will gladly be mailed. . . . Address Snap-On Tools Corp., Kenosha, Wis. . . . Mention of FLEET OWNER always helps.

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New Free Governor Manual

CONTAINING what is claimed to be the most complete automotive governor data ever published, Hoof Products Company, Chicago, has recently announced a new sixty-four page manual. It is available gratis to automotive executives, public officials, fleet operators, service men, etc.

The treatise not only describes many advanced governor engineering and performance features, but also proves the important operating economies and contributions to safety of life and property when governors are used on trucks, buses, taxicabs and cars.

When writing for your free copy address Hoof Products Co., 166 N. Franklin St., Chicago, Ill. . . You'll mention FLEET OWNER, won't you?

Kem Metal-Protective Paints

SHERWIN-WILLIAMS announces new Kem metal-protective paints, known as Kem-Kromik, Kem-Red-Lead and Kem-Elastic, the "vehicle" in each case being a specially-developed S-W Kem Liquid synthetic.

Advantages claimed include: More complete exclusion of water and gases from the metal protected; definitely greater durability; improved appearance; faster drying; easy brushing; better covering, etc.

In Kem-Kromik, the inhibitive value of the balanced lead-chromate formulation of their Kromik Metal Primer has been retained. Kem-Red-Lead is offered as a primer for those who prefer this type of paint. . . . G & G Primer is another product, especially developed for the priming of galvanized iron and other zinc-coated metals. Kem-Elastic is specified as the finish-coat over any of these primers.

For complete details, address The Sherwin-Williams Company, Cleveland, Ohio. . . . We always appreciate it when you mention FLEET OWNER.

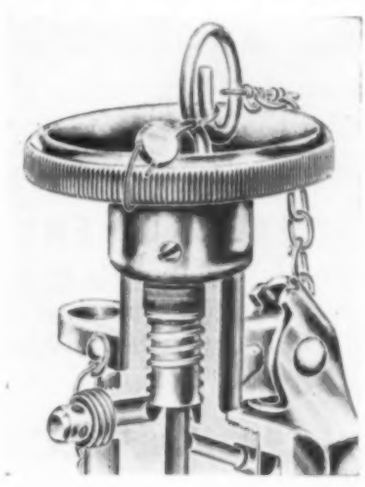
•

New Design for Lux Units

SHOWN here is the new hand-wheel of the Lux fire extinguisher. It is a definite improvement in the design of the control-wheel on the operating valve of seat-type extinguishers, according to the makers.

This new hand-wheel gives a better grip, more leverage and is, therefore, easier to operate. It is provided with a pull-out pin which is kept in tension at all times assuring positive sealing. With this Lux seat-type valve, premature operation due to vibration is impossible.

The extinguishing agent in all Lux units is carbon dioxide which is said to be the fastest extinguishing me-

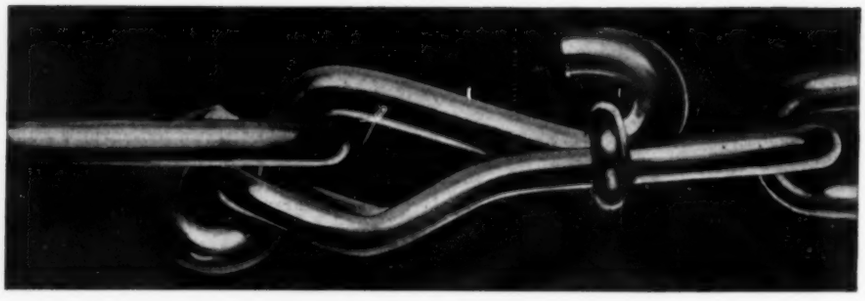


dium known. Fire protection engineers consider it the finest protection available for fighting oil, gasoline and electrical fires, the makers state.

For further information on this and other recent improvements write to Walter Kidde & Company, 60 West Street, Bloomfield, New Jersey. . . . Mention of FLEET OWNER is always appreciated.

McKAY

offers fleet owners these big advantages



● **SPEEDY FASTENER**—The McKay Klip-Lock will save your operators' time! It is unlike any other fastener. Much quicker to open and close. *Anybody* can close it . . . doesn't stick or jam . . . doesn't clog, freeze, or rust shut . . . locks Chains on tight . . . unfastens with one hand.

● **LONG WEAR**—Every type of McKay Truck Chain is built and road-tested to outwear other chains, but, *for the lowest cost per mile,* use McKay Multi-Grip! This is the *only* bar-reinforced truck chain with DOUBLE reinforcing bars. Result —super wear, super traction.

● **JOBBERS EVERYWHERE** —*Ample stocks of McKay Truck Chains in every section assure you of quick deliveries under weather stress.*

THE McKAY COMPANY
McKay Building, Pittsburgh, Pa.

McKAYS *are the choice, by competitive test, of many of the largest fleets!*

McKAY TRUCK CHAINS

Licensed to manufacture and sell Bar-Reinforced Tire Chains under United States and Canadian Letters Patent: The McKay Company; American Chain & Cable Co., Inc.; The Hodell Chain Co.; Pyrene Mfg. Co.; Dominion Chain Co., Ltd.; and Pyrene Mfg. Co. of Canada, Ltd.

White's "White Horse"

(*Continued from page* 48)

ground. Only after this practical testing is The White Motor Company formally announcing two engines, which occupy a place in their truck of the so-called "medium-heavy-duty" class. The weight of these engines is approximately seven pounds per horsepower. They embody what has been characterized as streamlined manifolding, which is largely responsible, combined with a combustion chamber design, for the high brake mean effective pressure and the power output of this series.

The two engines have capacities of 362 cubic inches and 318 cubic inches. The horsepowers developed are 116 and 110 respectively. These horsepowers are obtained at 3,000 r.p.m. and the engines are designed to operate continuously at this speed. The bores of the two engines are identical, i.e., 3⅞", with 5⅛" and 4½" strokes.

The new intake manifold, a subject of patent application, in addition to making possible the high output of these engines, has naturally made a very large contribution to the greater economy which has been proven within the last year to be an outstanding feature of this series engine. The ton-mile-per-gallon figure has been much increased over any previous figures and the oil consumption has been shown to be surprisingly low.

The carburetor represents an innovation designed specifically for this new type manifold and actually embodies two carburetors in one, each supplying three cyinders. The primary feature of the inlet manifold lies in securing the best balance in ratio and distribution, with an absence of any loading of the end cylinders. The tests of the volumetric efficiency of the respective cylinders at all speeds have shown uniform results, we are told.

Cylinder and piston design containing new construction features is responsible for these new truck operating standards. The pistons are aluminum alloy of a special five-ring design. Copper-lead bearings are used throughout on connecting-rods and mains. A special design of water manifold sprays water directly on the valve seats, and the water is carried entirely around exhaust valve seats. Instead of relying on studs in the top deck of the cylinder-block for securing the cylinder head, pillars have been carried down to the base of the engine, thereby preventing any possible distortion of the cylinder bores proper when tightening down the cylinder-head.

Tocco-hardened crankshafts are used, together with zero-lash valve lifters and the water-pump is of the packless type. Another feature of interest from the life standpoint is the "granodizing" of camshafts—a surface treatment which prevents scuffing of the valve-lifters, it is claimed. Vibration dampeners are

used, freeing the engine from any roughness throughout the entire speed range.

In addition to the many hundreds of engines which have been operating in the field, several thousands of hours under full load have been carried out in the engineering laboratory.

Another feature of interest to the truck industry is the introduction of White patented cab seats. The White Motor Company has been working on the general question of driver-comfort for some time and this new style cab seat is a large contribution towards the solution of this problem.

The new seat is of tubular construction and is centrally mounted on the cab floor by heavy alloy-steel coil-springs, and supported by steel arms to the rear cab-support. The "ride-control" arms are mounted on rubber bushings which act as shock absorbers to prevent excessive bouncing; adjustment to the ride-control arms can be easily made to give the proper action for any and all driver weight. The effect is to "cradle" the driver and, at the same time, the tubular frame construction allows the free circulation of air around the driver, another very definite feature of comfort. These cab seats will be available in the new 1939 line of White trucks.

Genuine leather upholstery is used for maximum seat life, embodying double interlaced coil-springs in the seat cushion proper. Seats are adjustable and with the back and seat moving together in unison, all friction is said to be eliminated from the driver's back. This has been a common complaint with the old design seats commonly used in trucks.

New literature is now ready covering the new "White Horse"; and also the engine and cab-seat improvements. . . . For your free copy, write to Robert Cass c/o The White Motor Company, Cleveland, Ohio. . . . If you tell him you saw his announcement in FLEET OWNER, we'd appreciate it, and he'll be pleased to send you whatever literature you may desire, promptly, and without obligation.

•

Chevrolet 1939 Trucks

(*Continued from page* 54)

wheel location and angle are carefully chosen and the modern V-type windshield is of large area, affording full vision. Doors have a remote control handle which facilitates opening from inside.

Numerous provisions for the convenience of the driver in loading and unloading, as well as for protection of loads against weather are found in various models where these factors enter into the selection of a commercial vehicle, as in many instances they do.

Several minor mechanical changes have been made in the new Chevrolets, as compared with the 1938 models. A new type of cooling fan is used on the trucks. The ball-bearing water-pump has also been improved. The optional oil-bath air-cleaner is completely new—smaller in diameter and higher. There are several others, not available just now.

The new Chevrolet 2-speed axle (illustrated) is offered with two gear-ratios—5.64 and 8.22, the former for higher road-speed and the latter for greater pulling ability. This axle is a Chevrolet-built job, and has internal mechanism of the double-reduction drive type. Rod and cable linkage enable the driver to change the axle-ratios from the cab, quite easily.

Interesting literature covering the new 1939 Chevrolet Truck line is now ready. For your free copy address W. E. Fish, Mgr., Commercial Car Department, Chevrolet Motor Division, Detroit, Mich. . . . Mention of FLEET OWNER is always appreciated.

•

New Linde Air Sales Manager

T. D. CARTLEDGE, formerly Assistant General Sales Manager, has been appointed General Sales Manager of The Linde Air Products Company, a Unit of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York. . . . Our best to you, Mr. Cartledge!

CHECK OVER the New CLAMPTITE LOCK Yourself
Hundreds of truck builders and users agree that the new Eberhard CLAMPTITE lock sets a new standard for strength, appearance, durability and convenience.
STRENGTH—The CLAMPTITE is heavy enough to hold the largest doors and end gates without bending or breaking, but not too heavy or clumsy for use on medium-sized doors.
APPEARANCE—Designed expressly for commercial truck bodies, the fine appearance of the CLAMPTITE lock reflects its high quality and meets modern ideas of motor truck design.
DURABILITY—Durability in service comes from resistance to wear and shocks. Big, wide bearings on the CLAMPTITE insure against looseness and chatter. All parts, including keepers, have ample factor of safety against shock and impact.
CONVENIENCE—In application and in operation the convenience of the CLAMPTITE lock is unequalled. It fits practically all arrangements of doors and end gates and the operating handle (key-lock or padlock) can be placed in the most convenient location for the operator.
For end gate with double doors above, one keeper may be mounted on door, as shown. Note center position of padlock handle for best appearance.
See your dealer or write direct to
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Division of the Eastern Malleable Iron Co.
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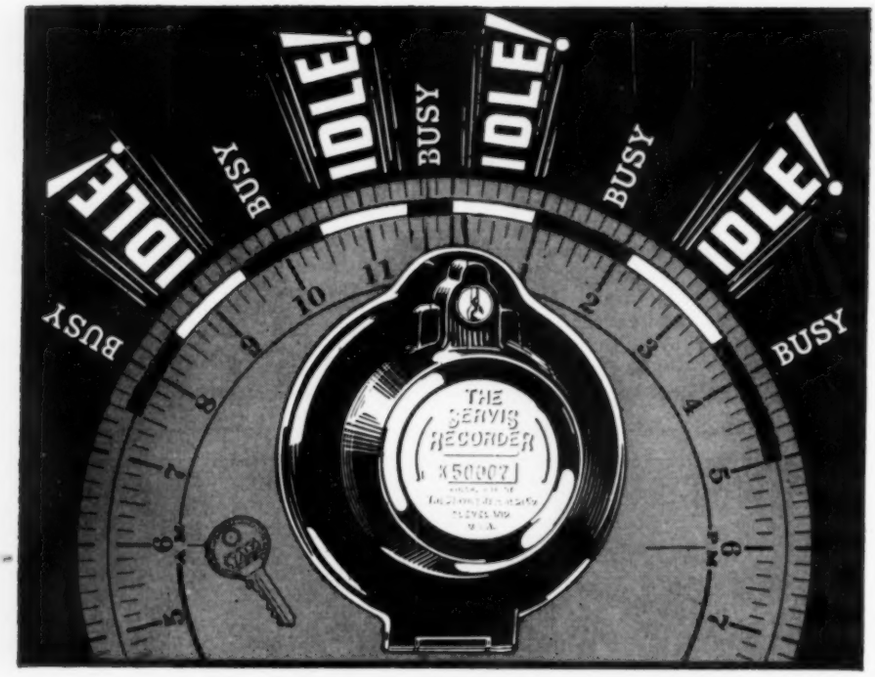

THESE DELAYS JUMP OUT AT YOU!

Your truck stood idle between 10:30 and 11:30—an hour of unproductive time!

You can't miss it. That blank space on the *Servis Recorder* chart jumps out at you. It shouts, it doesn't whisper! And an hour's time of a motor truck, what does it cost? Maybe two or three dollars.

Shows Up ALL Delays

It's like a picture. You get it at a glance. Then you become amazed to discover what you can save in valuable truck time—an hour or two a day! an extra trip! more work with the same number of trucks! a check on speeding!—on overtime! routes evened up, and a better moral effect all around.

It's what you might call: "the obvious thing to do!" Over 100,000 trucks are now equipped. Send for illustrated booklet—*"Ten Ways of Getting More Work Out of Motor Trucks."* It's FREE.

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The Servis Recorder
Tells Every Move Your Truck Makes

New Yorkers Buy Lighter Cars?

INCREASING popularity of lighter cars is seen by Charles A. Harnett, motor vehicle commissioner of New York, in the fact that although registrations of motor vehicles during the first seven months of 1938 were 27,534 more units than during the same period of 1937, the tax receipts declined by $2,137,510—gasoline taxes, of course. . . . New York State last year increased its gasoline tax by 1c per gallon, thus giving an added incentive for car users to cut down their costs. . . . So the only logical thing to attribute the decline in tax revenue is to the use of lighter cars that burn less fuel.

Offers Data on "Battery Shelf Life"

THE BOARD of Directors of the National Battery Manufacturers Association recently approved and adopted the following recommendations of its technical committee on the subject of "Battery Shelf Life." . . . The report of the technical committee reads: *"The Technical Committee wishes to call attention to the fact that when batteries are allowed to stand on open circuit, a definite impairment may result, and it recommends that batteries be placed on charge when a drop in gravity of 30 points has taken place, or after a standing period of six weeks has elapsed, whichever occurs first."*

Goodrich Personnel Changes

E. F. TOMLINSON, until recently in the Chicago, Ill. office of The B. F. Goodrich Company manufacturers' sales department, has been transferred to Milwaukee, Wis. in charge of manufacturers' sales, it is announced in Akron, Ohio, by G. E. Brunner, general sales manager, Goodrich original equipment tire division.

John F. Rend, sales supervisor for Goodrich in the Buffalo, N. Y. district, also goes to the Milwaukee office.

P. E. "Jerry" Tobin, manufacturers' sales in Akron, is transferred to Detroit, Mich. manufacturers' sales, and J. T. Callahan, sales supervisor in the New Orleans, La. district, replaces him on the Akron staff.

H. H. Bryant has been named operating manager of the manufacturers' sales department in Akron, Mr. Brunner announced.

•

More Demand for White-Wall Tires

INCREASED demand for white sidewall tires at the rate of approximately 25 per cent annually is noted by the B. F. Goodrich Company, Akron, Ohio, tire manufacturers.

•

Arc-Welded Line-Truck

(*Continued from page* 24)

construction. Through inquiry it was learned that the local cost of rivetted structures in materials like those used in this body would be 20% higher than welding, which would make the unit cost per pound 62.28c and if the scaled weight of the body were increased 200 pounds, its weight would then be 2,158 pounds, if rivetted construction were used. Multiplying this weight and the rivetted construction cost, this body would then have cost $1,344.00.

This shows an excess cost difference of $327.55. This cost difference represents a saving of 32%. Considered on the same basis as the other savings referred to, namely, over the period of ten years, useful life, and adding 6% interest for ten years, we find that the interest would amount to $196.53 and adding this to the principal $327.55, we have a gross amount of $524.08. With this amount added to the other gross savings, the final sum becomes $5,508.69 (ten year's interest included) as applied to an assumed useful life of the unit of ten years.

Should the power industry of the United States generally adopt this design of body or one very similar, with modifications to make it suitable to requirements for local conditions which would neither increase nor decrease the gross cost per unit, or in weight which includes the chassis and the fixed equipment such as winch, pole derrick and stiff legs, a gross saving for cash would accrue, when compared to the cost of com-

posite truck bodies, amounting to well over $6,000,000.00 in cost difference based on the relative cost of this unit with the cost of the unit replaced.

Now with the company's cost difference and apparent savings made by the adoption of the truck unit described, plus the interest on all items amounting to $5,448.71, if multiplied by 197 trucks, the total savings accruing to the country's utilities over the period of ten years predicted useful life of new light-weight equipped trucks, would amount to $10,890,-669.06.

●

Power-Brake Survey

(*Continued from page* 29)

unless someone *tells* them; and aren't we doing just that in this paragraph?

Someone once brought up the argument that power brakes raise perfect hell with brake linings, drums, tires, etc., because sometimes too much power is developed, resulting in the shoes being pushed through the drum, drum-scoring, short brake lining life, etc., etc. . . . So we asked the question, *"How do power brakes affect brake costs, tire costs, general costs, etc?"* to see if there really was anything to it. . . . Well, opinion seems to be still pretty well divided, and we can say that the thing is still in the controversial stage, for, the answers were: "Increase"—39; "Decrease"—39; "No difference"—38; and 25 "No answers." . . . That's something that we are not going to try to settle right now. But we've started something, and it might give you something to look into, some nice day when you have the time, and so forth.

In order to somewhat clarify the the above question, we next asked, *"What are your most common power brake troubles?"* . . . Here are some of the typical answers we received:

ON AIR BRAKES:

"Air-compressors need frequent attention."—(Mentioned 2 times)

"Oil-pumping on built-in type compressors."

"Carbon in air-compressor lines."

"Water and dirt entering compressor and brake assemblies."

"Air-line leaks in various places."—(Mentioned 11 times)

"Quick-release valves too slow; sometimes leak." (Mentioned 5 times)

"Diaphragms in wheel-chambers give trouble." (Mentioned 3 times)

"Control-valves leak and are troublesome." (Mentioned 2 times)

"Wheel chamber supports break and loosen."

"Shut-off valves often leak."

"Trouble with belts that drive air-compressors."

"Too much air-pressure sometimes cracks brake-drums."

ON VACUUM BRAKES:

"Dirt, dust and moisture gets in air-valves." (Mentioned 8 times)

"Vacuum leaks in various places often give trouble." (9 times)

"Difficulty with control-valves on vacuum brakes."—(7 times)

"Broken lines; collapsed, leaky, rotted, broken, hose, etc."—(10 times)

"Booster cylinder wear; frequent cylinder service, etc."—(5 times)

"Booster piston or diaphragm sticking; oil, dirt, etc."—(3 times)

"Booster cylinder leaking; faulty diaphragms, etc."—(7 times)

"Booster cylinder end-plate wear."

"Manifold-to-valve line failure."

"Troubles with relay valves."—(3 times)

"Water in cyl. and lines; freezing in winter, etc."—(8 times)

GENERAL BRAKE TROUBLES:

"Need frequent adjustment of linkage with power-brakes."—(6 times)

"Linings and drums do not stand up under power-brake strain."—(13 times)

"Have trouble keeping brakes equalized with power-brakes."—(4 times)

"Note more tire-wear when power-brakes are used."—(2 times)

"Tendency to grab when truck is empty."—(2 times)

"Troubles are mostly with hydraulic brake system."—(3 times)

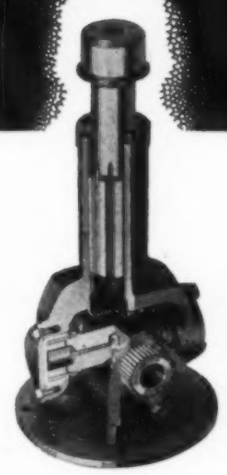
"It is hard to train drivers to use power brakes properly."

"Brakes squeal; this is our only power-brake trouble."

"Difficult to get good lining mileage

FOR 1939, AS FOR MANY YEARS PAST

the industry chooses Spicer Equipment



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★ Throughout the entire history of the automotive industry, manufacturers have always shown a marked preference for Spicer Equipment. And this preference has been won entirely through the unquestioned quality of Spicer products.

Now as the industry starts a new year, we again find Spicer Equipment making valuable contributions to the safety, efficiency and economy of modern passenger cars, trucks and buses.

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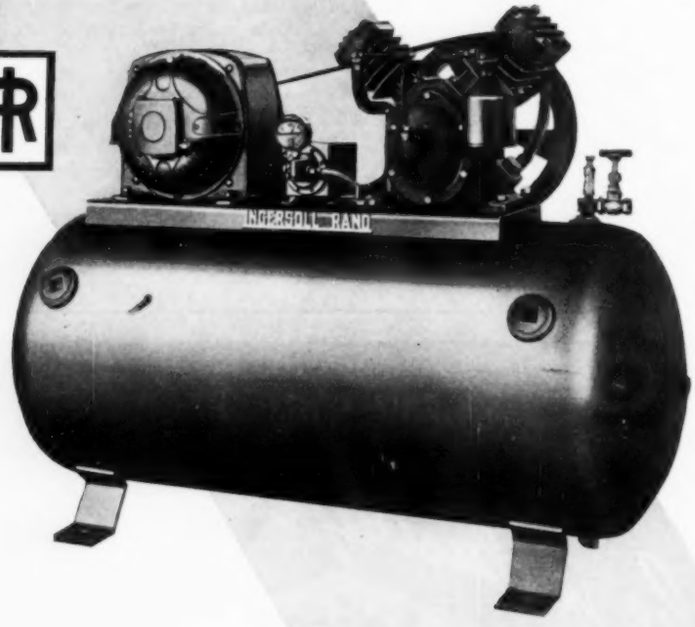

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TYPE 30
Compressors

INGERSOLL-RAND'S new finger valve compressors cost definitely less to operate than the units which they supersede.

In addition, they are better looking and they retain all of the outstanding features which have made I-R two-stage compressors so popular in garages, service stations and fleet shops.

Ask your jobber about them today or write for leaflet No. 2504.

Another new I-R tool—Size 77 body and fender straightener

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and short stopping distance."

"We have no trouble with power-brakes."—(10 times)

"Very little troubles with power brakes."—(12 times)

SOME TYPICAL REMARKS: (general)

"Power brake cost per mile is very small, if kept properly adjusted."

"Line from manifold to booster, rots from oil; cracks from vibration."

"Have used all kinds of vacuum brakes; we find that electric brakes are satisfactory and economical, after mechanic becomes acquainted with them."

"Our trouble is in keeping brakes equalized. Drums and linings on right side seem to wear faster than on left side."

"Our difficulty is too severe application of brakes by the driver. This has been overcome on electric brakes by placing a rheostat in the line, which is variable for light and heavy loads."

"Slight increase in cost of maintenance of power-brakes is greatly offset by additional braking power obtained. Would not consider any new units without power-brake equipment."

"Our power-brakes have had little or no servicing. We find the only difficulty is that vacuum brakes cannot be stepped up like air can, by increasing the pressure."

"Only use air-brakes; troubles confined to small leaks; no complaint regarding length of service from operating parts."

"Grease rots rubber diaphragm; should be made of synthetic rubber."

"Have a number of 4-wheel trailers and pole-trailers, all equipped with electric brakes and like them very much."

"Trouble is getting quick-release valves (used with air brakes) to release fast enough and not to leak when brakes are applied."

"There is a somewhat greater maintenance effort spent on air-brakes, than on vacuum-brakes, but both systems are operating satisfactorily in our fleet."

"Believe everything over the 1-ton class should have some form of power-brake."

"There is need for practical form of adjustment of boosters, for speed, load and traction conditions; no-load stops are too rough."

"Very little trouble; low-priced vacuum boosters have given some valve trouble, which called for complete replacement of valves; inaccessible for repairs."

"Our chief trouble is in obtaining a lining that will give a reasonable mileage without sacrifice of safety, or injury to drums and equipment."

"Very little trouble; greatest trouble with brake-drums."

"Have had no trouble with boosters; due to easy hook-up, we recommend them."

The 174 fleets participating in this survey are located in 34 States, Hawaii, Puerto Rico and Canada. They are classified as to industries as follows: Trucking—33, Public Utilities—15, Dairies—13, Bus Operators—12, Groceries—12, Manufacturers—9, Meat Packers—9, Petroleum—8, Municipalities—8, Coal and Ice—7, bakers—7, Contractors—6, County H'way Depts.—6, Dept. Stores—5, Lumber—4, State H'way Depts.—2, Taxicabs—3, Produce—2, Telephone—2, Bottlers—2, Drive-Ur-Self—2, Jobbers—2, Laundry—1, Insurance—1, Nurseries—1, Newspaper Pub.—1, Federal Depts.—1.

These fleets have an average of 152 vehicles each or a combined total as follows: 15,430 Trucks, 1,154 Tractors, 1,897 Trailers, 6,104 Passenger Cars, 987 Buses, 276 Taxicabs, and 541 Miscellaneous vehicles, making a grand total of 26,389 vehicles.

So you see, folks, this survey is *quite* representative. We hope you will participate in this monthly feature, in return for which you will get a private and personal copy of the tabulation which we make. This contains all of the confidential information that we can't give here—trade names, etc., etc. . . . This month's questionnaire promises to be unusually interesting, since it covers the subject of Tire Valves. . . . It's on page 51. Your cooperation will be appreciated.

Elec. Trouble Shooting

(*Continued from page* 52)

quite a long run of popularity. Recently, an inorganic material (synthetic rubber, perhaps) has been used, without any cotton or lacquer covering of any kind. Not being affected by solvents or lubricants, it is easy to see why the latter type of cable gained ready acceptance.

However, it is *not* the purpose of this article to tell you what type of cable you should use, or why. Your manufacturer's sales engineers can best advise you as to the type. All *we* can say is to use the best cable that money can buy.

And that's about all there is on the ignition question. This article does not attempt to go into the "scientific" angle of ignition testing, because special equipment is required for this work, and also because the procedure seems to be a bit *different* with each type of electrical test-apparatus. We have, therefore, stuck to the basic fundamentals only.

Next month we will conclude this series of articles on Electrical Trouble Shooting with an article telling how to check headlight circuits and lighting circuits in general. Thus far, the only *special* piece of equipment we have needed is the low-reading volt-meter.

It is important to remember, when using this type of instrument, that current must be *flowing* through all wires or members tested; otherwise there will be no reading. If you are just catching up to us, and are interested in performing some tests, you will have to get a volt-meter, if you already haven't one. However, the purpose of this series of articles is *not* to sell volt-meters, so don't get us wrong. Write us if you have any difficulty in obtaining a suitable volt-meter; we know where they're made.

And if you get a chance to tell us how you like this series of articles, we'll be quite pleased to hear from you, and to answer any questions that you might have in mind. Watch for the next article—Lighting Circuits—in our December issue.—H.C.F.

•

Diesel for Ford Trucks

(*Continued from page* 36)

fuel transfer pump is built integral with the fuel-injection pump.

Engine speed is governed by an automatic governor of the velocity or "vacuum" type, which provides engine control not unlike that of the throttle of the gasoline engine. The engine is of the over-head valve type.

The general design of all Hercules Diesel engines is similar. All have the patented pre-combustion chamber, chrome-molybdenum crankshafts, crankcases cast integral with the cylinders, removable cylinder sleeves, aluminum alloy pistons, heat-treated chrome-molybdenum connecting-rods—rifle-drilled for lubrication to the pins, full-floating piston-pins, centrifugal water-pumps, and full-pressure lubrication to all connecting-rods, main bearings, piston-pins and rocker-arm bushings.

An interesting piece of literature has just been issued, illustrating and describing the new Hercules Diesel Ford Conversion Package. . . . For your free copy address Mr. C. L. Jaycox, c/o Hercules Motors Corporation, Canton, Ohio. . . . We'd appreciate your mentioning FLEET OWNER when you write for this. . . . It not only identifies your inquiry, but helps to speed up the service. . . . Thanks.

Diesels in New GMC's

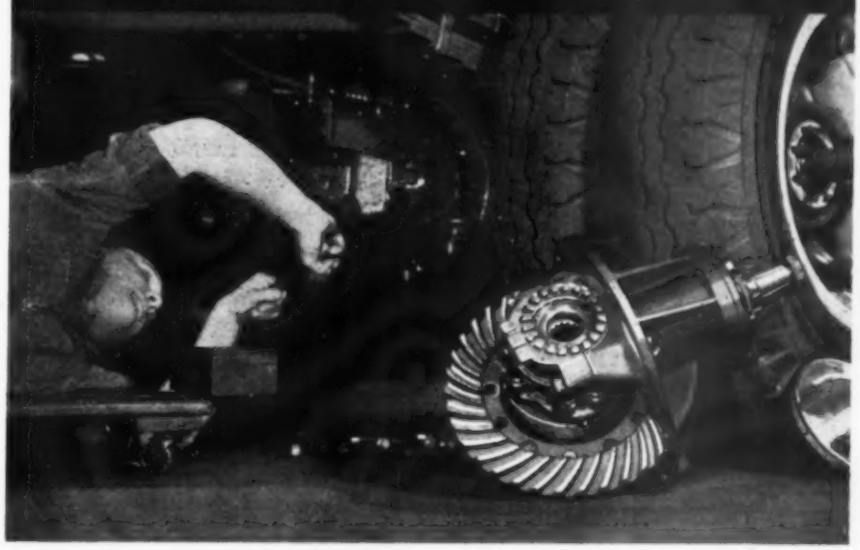
(*Continued from page* 38)

trated in this article) which has 213 cubic inches displacement, developing from 230 to 263 foot-pounds of torque, is offered in GMC's 600 series. With only three cylinders, the smoothness of operation of this engine is claimed to be equal to that of any six-cylinder Diesel engine.

In addition to Diesel power, all these new truck models incorporate the same improvements in appearance, driver comfort, and control incorporated in the regular GMC 1939 line,

Bevel • Double Reduction • 2 Speed

INTERCHANGEABLE OVERNIGHT!



TIMKEN 3 FOR 1 AXLES

Take 3 Types of Final Drive

• Protect your truck investment by specifying this advanced Timken Axle. It enables your dealer to fit the truck to your job. And when operating conditions change, you'll have a truck that can be changed over to Bevel, Double Reduction or 2-Speed Double Reduction Drive—whatever your new hauling job requires. Timken 3 for 1 Axles are available on most makes of trucks. Ask your dealer.

The Timken-Detroit Axle Co., Detroit, Mich.

Wisconsin Axle Division, Oshkosh, Wis.

. . . nor will it stop *your* trucks or busses if they're equipped with Sleetex Twins, the guaranteed DUAL windshield defrosters.

Used in place of rain wiper blades, they dissolve sleet, ice and snow *instantly!*

Federal I.C.C. regulations specify an "anti-sleet" device. Sleetex Twins fill that requirement most efficiently at lowest cost.

Supply each of your drivers with a set of these defroster blades now, for Safety, Economy and Convenience.

2 COMPLETE BLADES
2 *Extra* REFILLS
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SLEETEX TWINS

which will be illustrated and described in our next issue.

Thus, truck operators are offered for the first time—exclusively by GMC—the combination of Diesel sustained torque, ball-bearing steering, and GMC's rapid Synchro-Mesh shifting.

GMC's three-cylinder Diesel brings Diesel economy to the two- and one-half to three-ton market, when used in the 500 series. A special 440 series, covering both conventional and cab-over-engine models and designed for straight truck operation on good roads, offers GM Diesel advantages in the lowest possible price market.

Although the basic details and operating principles of the new GM Diesels were illustrated and described on page 43 of our February, 1938 issue, the foregoing material will bring you up-to-date on the *truck* applications. . . . If you'd like further details, just refer back to our February issue.

Or, if you'd like to get interesting literature that illustrates, describes and prices the new Diesels as well as the new trucks in which they are offered, write for your free copy directly to F. S. Vorn, c/o General Motors Truck Division, Pontiac, Mich. . . . Mention of FLEET OWNER always helps.

New Fruehauf Trailer

(*Continued from page* 53)

The lower view shows the finished job. Side and front panels are of aluminum. The rear doors and tailgate are steel-covered. The roof is all-metal, rust-resistant and heat-reflecting. The improved supports are stronger and more rigid, because the wheels are straddle-mounted.

No doubt you would like to receive interesting literature, prices, and other details of this latest Fruehauf semi-trailer. For your free copy, address Freuhauf Trailer Company, attention of L. C. Allman, 10913 Harper Ave., Detroit, Mich. . . . We always appreciate it when you mention FLEET OWNER. . . . It identifies you with our publication and often speeds up the service. Thanks.

•

Pak-Age-Car for 1939

(*Continued from page* 42)

disc-type, with 16-inch drop-center rims. Alemite lubrication is used.

The Ross, 15-1 steering gear is so arranged that the driver can operate the vehicle from a standing position with all controls within easy reach. An adjustable, folding seat is provided which may be used at will.

From an economy standpoint the 1939 Pak-Age-Car offers much to the fleet or individual truck owner. With constant running of the engine it requires approximately only one quart of gasoline per hour. The easy accessibility of the unit-power-plant is likewise of importance in maintenance costs.

Time — capacity — operation and maintenance costs are major problems of the business man with frequent-stop delivery; the time it takes the driver to cover a territory—the capacity to carry loads conveniently and accessibly—the cost per mile for gasoline and repairs.

These were the problems the Pak-Age-Car sought to meet—through the development of this specialty vehicle, designed and constructed for businesses that require frequent stops in their delivery systems.

The driver angle is tremendously important. With several stops to a block he must constantly be getting in and out of the truck. Reduction of effort and the speeding up of unloading at each stop makes a heavy total at the end of the day. The new Pak-Age-Car, being rear-engine driven, leaves the entire front compartment clear and free, provides more space and makes the merchandise more accessible. Also, it enables the floor of the compartment to be level and closer to the ground.

The driver steps directly from the floor of the Pak-Age-Car to the pavement, or if parked at the curb, he walks directly out of the car to the sidewalk. The merchandise is directly alongside him, which means the saving of steps—hence more time to get

to the next stop or to solicit new business.

On the Pak-Age-Car the inside load space is 60 inches wide; length from dash to rear panel on floor, 77½ inches; height of driver's compartment, 74 inches, high enough for the tallest man to stand up straight. It's like working in a room, according to the makers.

Complete literature, details and prices are now ready. . . . For your free copy address The Pak-Age-Car Corporation, Connersville, Ind. . . . Mention of FLEET OWNER always helps. Sometimes it speeds up the service; we'd appreciate it, too.

•

Larger Metro Bodies

(*Continued from page* 44)

sales volume. (We told you something about this in a story—June, 1937—about the Wheatality Bakery Company of New York).

Other findings in this study revealed that the "over-all" type of body offered many advantages in the way of savings in garage space, easier handling and parking in congested districts and, perhaps most important of all, that a body made large enough for the load, without overstepping the chassis manufacturer's rated carrying capacity, was needed and desired by many operators in the vocations mentioned previously.

So (as you probably know) the start was made with the 9-foot body for the ½-ton chassis (as we told you in November, 1936) giving a capacity of 250 cu. ft. of load space, as compared to 120 feet provided by a conventional panel body on the same chassis. And, today, the same firm also offers the 11-foot body, previously described.

On both of these bodies the driver's seat is only one step up from the curb-level entrance-step, which should lessen driver-fatigue and save time. It is a fact that most operators of these vehicles are driver-salesmen. And also, that a tired driver is a poor salesman.

Of course, there should be a certain amount of advertising value inherent with the use of a body of this type, as the heading picture of this article illustrates. But, before we get any further, this is not a sales-talk; it is merely an editorial description, just to keep you informed, and we think we've told you about all that's necessary.

Should you like to get illustrated literature on the new Metro Bodies—and also the Metro Magic Door, address Mr. William Carlson, c/o Metropolitan Body Company, Bridgeport, Conn. . . . He will be glad to send you full details promptly, and without obligation. If you mention FLEET OWNER, when writing, we shall greatly appreciate it. Sometimes it speeds up the service, you know.

Differential-Dual-Wheels

(*Continued from page* 46)

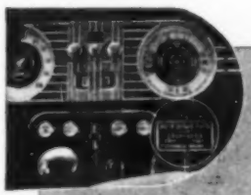
lion or more commercial trailer owners in the United States.

These new wheels are universally applicable to all trailers and third axle trucks; they require no special axle construction; they fit any dead or trailing axle; they require only average lubrication; they are interchangeable with conventional or integral wheels; and they cost less than the tires, whose life they double.

A number of the nation's largest fleet operators, both public and private, have specified them on their equipment, including the Gulf Oil Corporation, Horton Motor Lines, American Can Company, The Borden Company, Acme Freight Lines, Barnwell Bros., R. C. Motor Lines, Tidewater Associated Oil Companies and the Standard Oil Co. of New Jersey, according to the makers. The last mentioned firm will exhibit a large tank truck, equipped with these wheels, at the Truck Show.

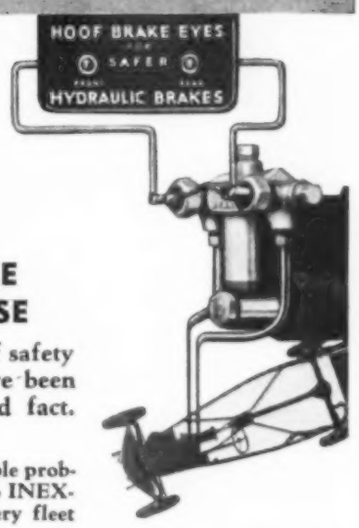
Visitors to the National Motor Truck Show will have the opportunity of seeing a life-sized demonstration

(*Please turn to page* 70)



Greatest Nine Words ever written in Hydraulic Brake History

NO LONGER NEED LEAKS CAUSE COMPLETE HYDRAULIC BRAKE FAILURE



An Epoch Making Announcement that opens up a new way for fleet operators to

- **REDUCE ACCIDENT RATES**
- **CUT INSURANCE COSTS**
- **SAVE ON HYDRAULIC BRAKE AND MAINTENANCE EXPENSE**

The search is ended! That extra measure of safety for which Hydraulic Brake Engineers have been seeking for years is now an accomplished fact. Hoof Brake Eyes are the answer!

Again engineering has solved a seemingly impossible problem, solved it effectively; solved it with a device so INEXPENSIVE that the cost will be dismissed by every fleet operator as of no consequence!

NO ONE KNOWS how many accidents are caused by Brake Failure due to loss of brake fluid! Dead men tell no tales! Wrecked cars conceal the facts! But one thing is certain. Loss of brake fluid through leaks or breaks in the lines is the cause of many accidents—accidents that YOU can now prevent by the simple installation of Brake Eyes . . . on every car, bus or truck in your fleet.

Hoof Brake Eyes not only prevent total brake failure when loss of fluid occurs, but they also provide the driver with a constant check on brake condition *from the dash*. When normally operating brakes are applied, two small red "eyes" light on the dash indicator; when only one "eye" lights, the driver knows immediately that only the front or rear brakes are operating, knows that the Hoof Brake Eye mechanism attached to the hydraulic brake cylinder has sealed off the leaking brake line giving him one good set of brakes instead of NONE!

Not only is the use of Hoof Brake Eyes on your trucks, buses and cars an important step in accident prevention and an important aid in reducing insurance costs under the "experience rating plan" but is also the means of reducing maintenance costs.

An air trap, located in the top of the Hoof Brake Eyes, prevents air from getting into brake lines. A central bleeder screw located on the top of this trap makes possible the bleeding of trapped air in one simple operation.

10,000 Safety officials at NATIONAL SAFETY CONGRESS, October 10-14, see first showing and demonstration. Pronounced the greatest Safety Achievement of all time by automotive engineers, safety officials, police officials attending the Congress.

SURPRISINGLY LOW PRICED. INSTALLATION A MATTER OF MINUTES! SEND YOUR ORDER NOW. ADDRESS DEPT. BEF, 162 N. FRANKLIN ST., CHICAGO.

$10.00 List — For PASSENGER CARS and 1½ ton (or less) Trucks and Buses.

$12.50 List — and up for Heavier Trucks and Buses.

HOOF BRAKE EYES
For SAFER Hydraulic Brakes
HOOF PRODUCTS — CHICAGO, U. S. A.

FREE

48-page Automotive Cleaning Handbook. Goes thoroughly into all cleaning problems connected with truck operation and maintenance. Send for your copy TODAY.

Whether you buy or lease your tires, MAGNUSOL will effect maintenance savings equivalent to 15,000 miles of tire wear . . . for every truck you operate!

How? Through labor, time and material economies! MAGNUSOL takes the "cling" out of grease and oil. It cleans small parts quickly and thoroughly . . . exteriors without injury to finish . . . undergear rapidly for inspection . . . cement floors without time-wasting scraping . . . etc.

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants

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MAGNUS CLEANERS

of the Differential-Dual-Wheels under conditions actually duplicating those on the highway. The principle of independent rotation and dual-wheel braking will be shown in motion, as will the actual difference in power required to turn Differential-Dual-Wheels as compared with the conventional rigid duals. A cut-away section of these wheels, together with a completely disassembled unit, will also be shown.

For your free copy of interesting, illustrated literature on Differential-Dual-Wheels, address Detroit Compensating Axle Company, attention of E. H. Mish, 22 East 40th St., New York, N. Y. . . . Mention of FLEET OWNER is always appreciated.

•

Salesmen Wanted (Adv.)

MAKER of tire-regrooving tool is seeking several additional salesmen with successful records in the automotive field. . . . Must know and be able to sell to fleets, and perhaps also to car dealers, gasoline stations, etc. . . . Product is well advertised. . . . Commission and bonus plan makes possible substantial earnings. . . . give full information and references in letter to Box S. H., FLEET OWNER, 90 West Street, New York, N. Y.

•

Diesel Engines Featured at Truck Show

THE widest range of Diesel-equipped commercial motor vehicles ever assembled at one time, anywhere in the United States, will be a feature of the Fifth Annual National Motor Truck Show, John F. Winchester, president and general manager, announced recently.

The show, which will cover 160,000 square feet of space, from November 11 to 17, at Commerce Hall in Manhattan's block-long Port of Authority building, will embrace Diesel-powered trucks and various types of Diesel equipment adaptable to any industry where maximum efficiency and lowest-cost operation is essential.

To be shown publicly for the first time, the Heil Company will exhibit a large Heil trailerized unit coupled to a Diesel tractor. Combined with the Diesel-powered unit, this development will create tremendous interest in transportation circles.

The Mack International Motor Truck Corporation will exhibit a Mack truck powered with one of their recently developed Diesel engines. The job, made to haul a semi-trailer, will serve the Dairymens' League Cooperative Association. General Motors Truck and Coach will show a new General Motors Diesel-powered gasoline tanker made for Standard Oil Company of New Jersey.

Other manufacturers to show Diesel equipment include Waukesha Motor Company, Hercules Motors Corporation, Sterling Motors Corporation, Cummins Diesel Engine Company, and others.

Another interesting Diesel exhibit is expected to be that of the coast-to-coast Hemphill-Diesel Schools which will show an educational display to include cross-sections of Diesel engines, injectors and oiling systems.

FOG LAMPS
SAFETY INSURANCE for DRIVER TRUCK LOAD
MODEL NO. 855
De-luxe design; 7-inch lens; chrome or black enamel
Now . . .
3 excellent K-D FOG LAMPS Models No. 855, 857 and 850 stand ready for duty . . . each one a leader in its class. You need all three!
Special lenses, beautiful bodies, rugged brackets, quality built and thrift-priced for quick turnover.
CATALOG No. 38 READY—WRITE!
Members by Invitation . . . Rice Leaders of the World Association
The K-D Lamp Co.
CINCINNATI, O.

WESCO
Chains *a complete line . . .*

Wesco chains are rugged and dependable . . . a long-wearing line of case-hardened, heat treated chains for cars, trucks and buses . . . on and off in a jiffy with the patented Wesco lock. Here is a line that will pay any fleet owner dividends and give complete satisfaction.

Write for circulars TODAY

WESTERN CHAIN PRODUCTS COMPANY

1815 Belmont Ave., Chicago

Fleet Men Get Truck Show Invitations

INDICATIONS of swiftly-growing interest on the part of fleet owners from as far west as the Pacific coast in the enlarged scope of the 1938 National Motor Truck Show, have prompted the show management to issue special invitations to approximately 20,000-odd operators of commercial motor vehicle fleets, and truck and passenger-car agencies in every state in the nation.

Fourteen bags of mail, containing invitations and literature descriptive of this year's show and of the many new features to be seen for the first time at a truck show, were dispatched last month, John F. Winchester, president and general manager of the show, announced.

All signs indicate that the show is certain to attract thousands of fleet operators and owners of agencies since hundreds of letters have been received in the past few weeks, expressing interest in the show and approval of its transfer to New York, Mr. Winchester said. It is believed, too, that many operators will seize the opportunity to see the sights in Manhattan as well as the many improvements in the equipment they need for the operation of their businesses.

Interest has been heightened, also, Mr. Winchester said, by the announcement that this year's exhibit will embody the largest display of Diesel-powered units and diesel equipment ever shown anywhere in the United States at one time. The Buda Company, Harvey, Illinois, is the latest of leading Diesel engine manufacturers to reserve space in the show. Scores of world-famous export truck experts are also planning to attend the show for the first time.

Some fleet owners, Mr. Winchester reported, have written letters expressing gratification at the opportunity to meet the foreign field men and hear some of the experiences they have encountered in foreign field truck operation. One of the foreign field men whom it is known is certain to attend the show is Norman Nairn, the celebrated operator of truck and bus transportation systems in the Near East.

•

Making Safety Posters? . . . Here's a Tip

IN preparing showcard colors for posters, signs, and similar display matter, the most important factor is proper dilution. The addition of a small quantity of glycerine to the diluted colors will act definitely to improve the color work and enhance the brightness and sharpness of the finished effort.

NOW!

COMPLETE DUAL WHEEL FREEDOM *AT LOW COST!*

FOR ALL TRAILING AXLES (AND THIRD AXLES)

- Sensational Savings
- Tire Tread Life Doubled
- Gas Expense Cut 10 to 20 Per Cent
- Service and Results fully Guaranteed
- Increased Safety
- Fool-Proof Dual Brakes
- The Low Cost Writes Itself Off in These Immediate Savings

DETROIT COMPENSATING AXLE CORP.

New York Detroit

Always ENOUGH OIL IN THE CRANKCASE

The oil in your crankcases is automatically maintained at exactly the proper level by the TRU-LEVEL OIL CONTROLLER. Oil is always at correct temperature and motors are always efficiently lubricated. No danger of insufficient oil supply causing overheating or excessive motor wear. No danger of too much oil fouling spark plugs, building up carbon and causing valves to stick. Made in 1-GALLON size for light vehicles—and in 3-GALLON size for heavy vehicles. Write for complete information.

for Passenger Cars, Trucks and Buses

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AMERICAN CHAIN & CABLE COMPANY, INC.
12-252 General Motors Bldg., Detroit, Michigan
630 Third St., San Francisco, California

ACCO

In Business for Your Safety

TRU-LEVEL OIL CONTROLLER

Announcing the GIANT-LITE

At last! A GIANT LITE! A stoplite that CAN BE SEEN easily at 1,000 feet. Makes possible greater safety. For trucks, buses, and passenger cars. Furnished with flush mounting or angle bracket. White lens available for use as a back-up lamp.

Ask your jobber or write

DO-RAY LAMP COMPANY
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Flares (Electric and Oil) • Tiger-Eye and Knobby Reflex Devices • Foglites • Stop and Tail Lamps and Specialties

A Certified DO-RAY Product

Be Sure to Specify

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POWER BRAKE EQUIPMENT

See your Midland Distributor or write for new 12 page booklet.

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HOTEL IMPERIAL

Everything at Your Fingertips

600 ROOMS $2.
SINGLE WITH BATH
DOUBLE WITH BATH $3.

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PENN STATION
SUBWAYS
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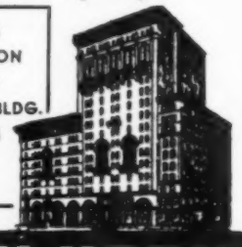


Write Manager for Special Rates (with or without meals) for week-end visits to New York City.

NEW YORK

U.S. BUREAU OF STANDARDS Bul. 86 States "Oil does not wear out-mechanically"

90 DAYS FREE TRIAL

"RECLAIMO"

Attached to

AUTOS-TRUCKS-TRACTORS-DIESELS

ends **OIL CHANGING FOREVER!**

Ordinary oil filters only remove solids and none of the other foreign destructive matter—thereby making frequent oil changes necessary.

"RECLAIMO" — The Super Filter-Refiner keeps crankcase oil Clean and Oily indefinitely by removing solids through filtration—and gasoline dilution, water, corrosive acids through the use of exhaust heat. Oil is only added to maintain level. Attached in place of present oil filters—makes oil changing a thing of the past.

Wm. Schwalge Patents.

MAINTENANCE MEN —to cut your operating costs get a copy of our booklet "Oil Facts" from your dealer, or if he cannot supply you write to:—

RECLAIMO MFG. CO., 2306 N. Western Ave., Dept. T, Chicago, Ill.

ADVERTISERS' INDEX:

A C Spark Plug Div.	49
Aluminum Co. of America	3rd Cover
American Brakeblok Corp.	—
American Cable Division of American Chain & Cable Co.	72
American Chain Division of American Chain & Cable Co.	8
Bendix Products Corp.	—
Bendix-Westinghouse Automotive Air Brake Co.	17
Bibb Mfg. Co.	10
Champion Spark Plug Co.	3
Cummins Engine Co.	7
Detroit Compensating Axle Corp.	71
Dodge Div. of Chrysler Corp.	—
Do-Ray Lamp Co.	72
du Pont de Nemours & Co., E. I.	43
Durkee-Atwood Co.	—
Eaton Mfg. Co.	—
Eberhard Mfg. Co.	63
Electric Storage Battery Co.	12
Ethyl Gasoline Corp.	45
Exide Batteries	12
Ford Motor Co.	33
Fruehauf Trailer Co.	25
General Motors Corp.-Diesel Engine Div.	40 & 41
Gerstenslager Co.	73
Globe-Union, Inc.	—
Goodrich Co., B. F.	9 & 37
Goodyear Tire & Rubber Co.	15
Hall Mfg. Co.	27
Hercules Automotive Sales Corp.	73
Hoof Products Co.	69
Imperial Hotel	72
Ingersoll-Rand Co.	66
International Harvester Co.	18A & 18B
Jenkins Bros.	19
K-D Lamp Co.	70
King-Seeley Corp.	—
Mack Trucks, Inc.	11
Magnus Chemical Co.	70
McKay Company	62
McQuay-Norris Mfg. Co.	—
Metropolitan Body Co.	30
Midland Steel Products Co.	72
Oakite Products Inc.	6
Packard Electric Division	—
Pak-Age-Car Corp.	23
Reclaimo Mfg. Co.	72
Reo Motor Car Co.	Front Cover
Sealed Power Corp.	4th Cover
Seiberling Rubber Co.	—
Service Recorder Co.	64
Sherwin-Williams Co.	74
S K F Industries, Inc.	73
Sleetex Co. Inc.	68
Spicer Mfg. Co.	65
Standard Oil Co. of Indiana	2nd Cover
Sterling Cable Corp.	31
Studebaker Corp.	47
Texas Company	4 & 5
Timken-Detroit Axle Co.	67
Timken Roller Bearing Co.	39
United States Steel Corp.	—
Vellumoid Co.	—
Wedler-Shuford Co.	—
Western Chain Products Co.	71
White Motor Co.	34a, b, c, d
Zenith Carburetor Co.	—

This is No. 2 of a series of pertinent facts. The third will appear in the next issue.

2 is this true or false "DELAYS are all the Fault of the Drivers" ?

The statement is FALSE! Most drivers are conscientious and do all in their power to give a full day's work for a full day's pay. Sometimes, of course, a few minutes here and there are lost that are entirely the driver's fault, but it is the experience of most fleet operators that delays are usually the result of circumstances beyond the control of the driver, when those delays have been accurately traced.

RECORD MASTER

affords a certain means of checking delays, both avoidable and unavoidable. The unit is quickly and easily installed in the truck with two screws or bolts and has no connection with the motor or electrical system. AUTOMATICALLY, it records every stop and movement of the truck during the day on a chart that may be inspected so that delays of all kinds may be accurately accounted for. RECORD MASTER charts will help you overcome the delays caused by waiting for loads, faults of the route, etc., and will help you also to even out the day's work and make every minute count. Ask us for the complete story of how RECORD MASTER will SAVE you from $1 to $1.50 a day PER TRUCK, and what it is doing for other fleet operators.

WRITE FOR FREE FOLDER

A request on your letterhead will bring you immediately our illustrated folder giving all the details about this important unit for reducing operating costs. Write for it TODAY.

HERCULES AUTOMOTIVE SALES CORP.
THORPE BUILDING MINNEAPOLIS, MINN.

IT HAULS BREAD—

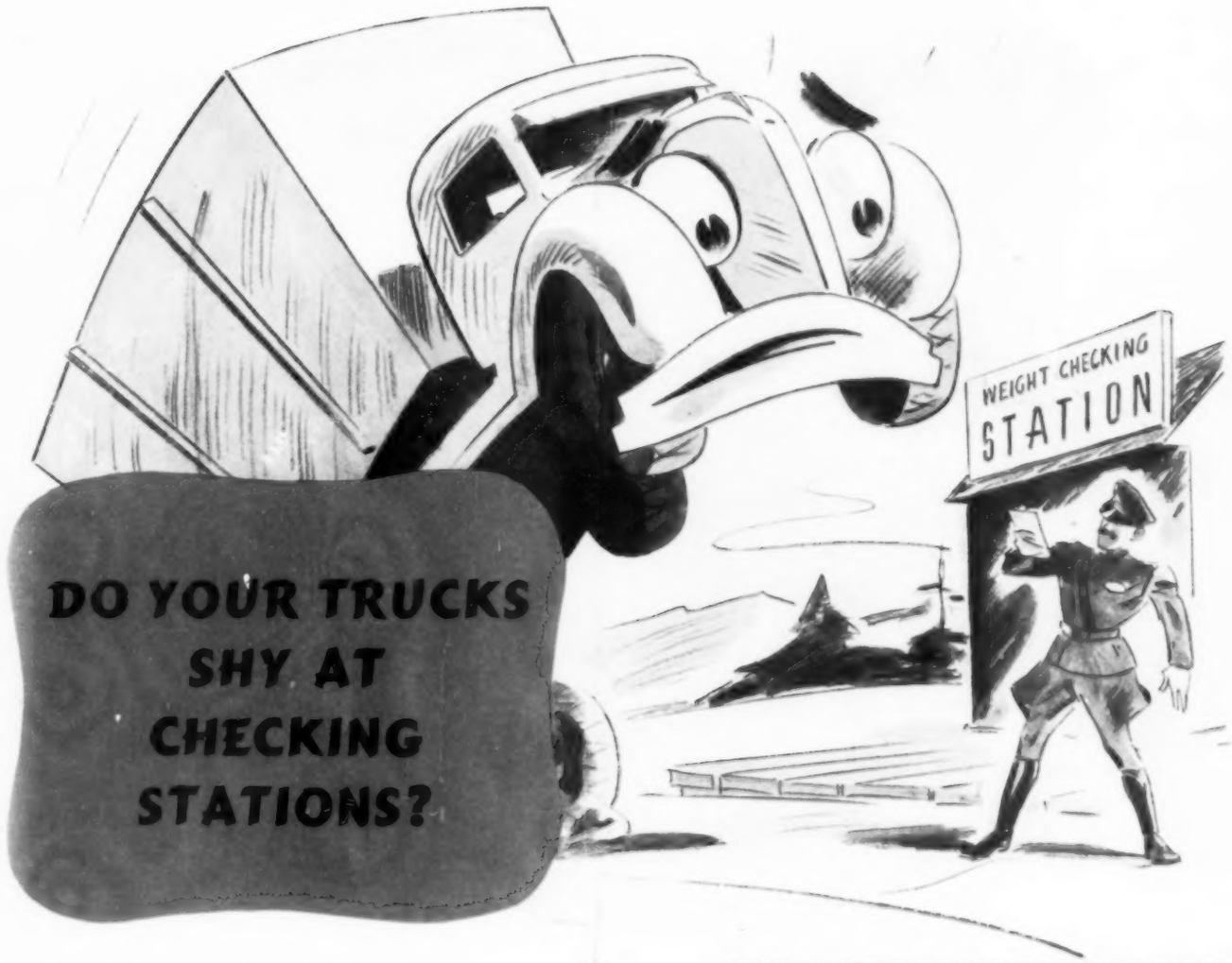
AND MAKES "DOUGH"!

. . . which is one way of saying that the Sherwin-Williams Kem Transport Enamel paint job on this huge trailer truck is winning a lot of customers for Larsen's bread. Any way you figure it, lasting "beauty and protection" spells greater advertising value and lower painting costs because it means your fleet keeps on the road doing its job!

Kem Transport Enamel is a strictly modern finish developed to make your deliveries effective travelling billboards. It produces a natural, porcelain-like, lustrous finish of exceptional beauty. Its remarkably brilliant colors withstand severe exposure, and its smooth surface is easily kept sparkling and clean. Painters prefer Kem because of the fast and easy way this finish handles.

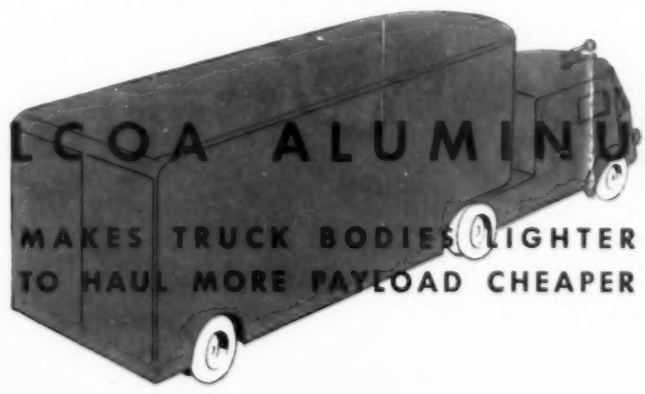
We invite you to try Kem Transport Enamel—and for help in developing attractive color schemes that identify your fleet, enhance streamlining and increase visibility, consult the S-W Transportation Color Service. No cost or obligation! Write The Sherwin-Williams Company, Cleveland, Ohio and principal cities.

SHERWIN-WILLIAMS KEM TRANSPORT ENAMELS



IF there had been weight checking stations on the highways of the Mesozoic Era, Dinosaurs would have shied away from them; Dinosaurs had heavy bodies which made them inefficient, led to their extinction. To extinction, also, are going the Truckosaurs of today, trucks with heavy bodies built of heavy materials. Light bodies, built light and strong from alloys of Alcoa Aluminum, carry more payload, earn more on investment, and also help solve the legal load limit problem.

You can even turn "load limits" and similar highway restrictions to your advantage if you use light bodies, constructed from the light, strong alloys of Alcoa Aluminum. The extra efficiency gives you a competitive advantage, since it reduces your per-pound hauling cost. Bodies constructed of Alcoa Aluminum carry extra payload and bring extra profit on all types of operation, whether or not legal limits are concerned. Note the special advantages listed at the right.



DO YOUR TRUCKS GIVE THESE BONUS LOAD BENEFITS?

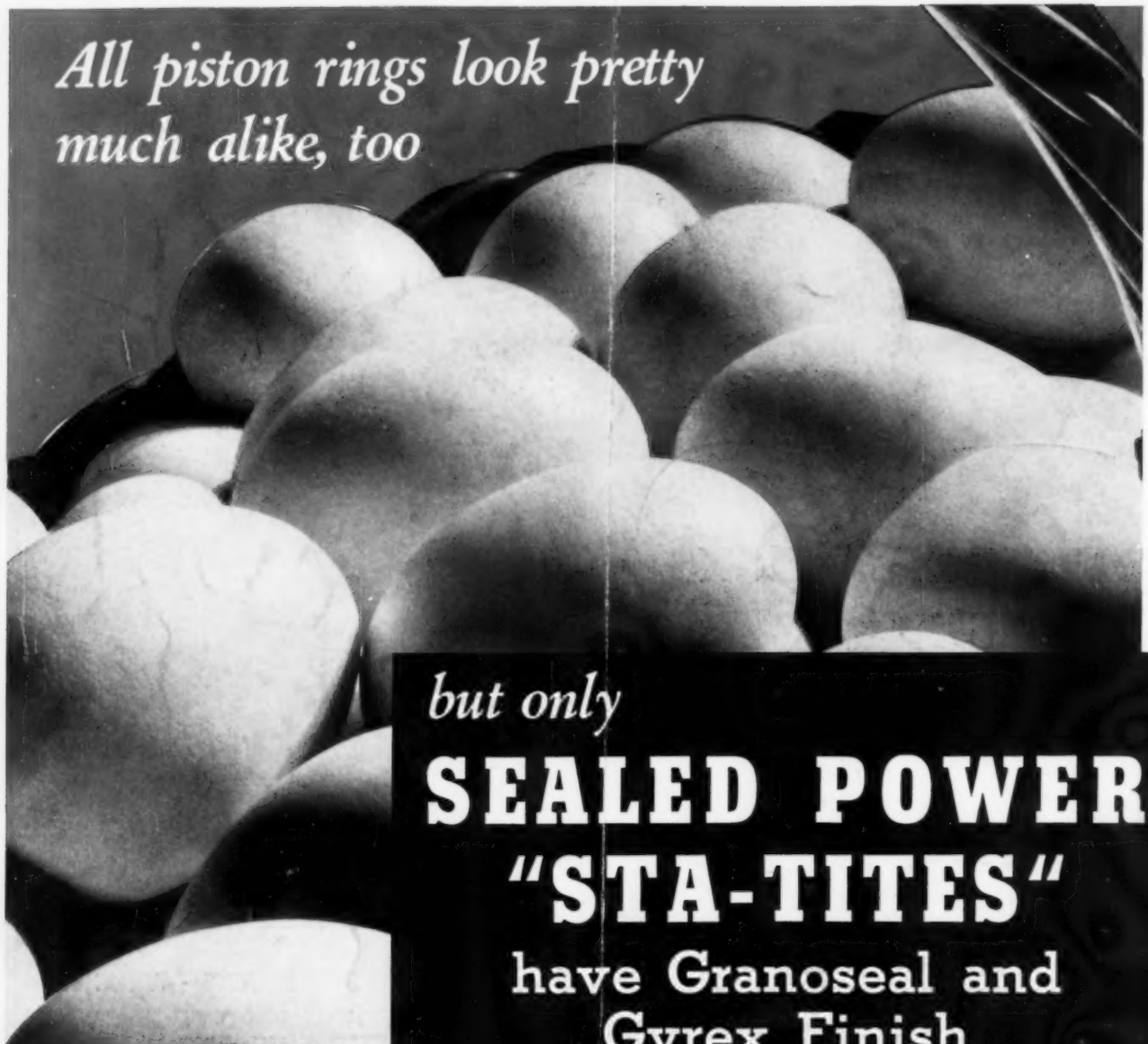
STRENGTH AND LIGHTNESS *with* SAFETY results when you build with light, strong alloys of Alcoa Aluminum. The material itself is light, so sections can be made thick, stiff, and strong. We cooperate with body builders to help you get the best results.

LONG LIFE — Often Aluminum bodies outlast several chassis. Finally, as salvage, they return far more. Reason: higher scrap value.

MAINTENANCE ON THE OUTSIDE — Paint holds to Aluminum better, lasts longer, giving more attractive units.

COST — A per pound breakdown of hauling cost reveals the reason for using Aluminum. Usually the figures show that extra capacity cuts costs, so the savings pay the extra first cost in less than one year.

SPECIFIC DATA on operating savings has been gathered in case histories of typical users of bodies constructed from Alcoa Aluminum Alloys. This material and other information on the subject is available to you in the free handbook, "*Alcoa Aluminum for Truck Bodies.*" Write to us for it. ALUMINUM COMPANY OF AMERICA, 2161 Gulf Building, Pittsburgh, Pennsylvania.



but only

SEALED POWER "STA-TITES"

have Granoseal and Gyrex Finish

YOU can't judge the merit of a piston ring by just looking at it. You have to prove its value. Thousands of fleet engineers have tested Sealed Power "Sta-tites"—and their verdict . . . "the world's best expander rings."

You see, only Sta-tites have *Granoseal Surface* and *Gyrex Finish*—two important features. *Granoseal Surface* prevents ring and cylinder wall scuffing; quickens ring seating. *Gyrex Finish* is a new side finish that frees piston rings from dish, warp and twist.

These two features, exclusive with Sealed Power—assure the utmost in piston ring efficiency and performance.

On rebore jobs, use either Sealed Power conventional or Sta-tite Rings. (And Sealed Power Pistons of Lo-Ex metal, too.) But for that in-between ring change—when you want to get 40,000, 50,000 extra miles before reboring, always use Sealed Power Sta-tites—with Granoseal Surface and Gyrex Finish.

SEALED POWER CORPORATION
MUSKEGON, MICHIGAN
Canadian Factory: Walkerville, Ontario
Piston Rings, Pistons, Pins, Valves, Cylinder Sleeves

SEALED POWER PISTON RINGS

SEALED POWER PISTON RINGS

BEST IN NEW CARS! BEST IN OLD CARS!